Archives of Dermatology and Syphilology

VOLUME 27 MAY, 1933 NUMBER 5

LEUKEMIC MYELOSIS ASSOCIATED WITH SPECIFIC NODULES IN THE SKIN

REPORT OF A CASE AND REVIEW OF THE LITERATURE

ROBERT E. BARNEY, M.D.

CLEVELAND

Arndt [1] has suggested that the old name myeloid leukemia be replaced by myelosis, which has as its essential pathologic feature the generalized hyperplasia of the myeloid hematopoietic tissue. According to the changes in the blood, myelosis is divided into aleukemic, subleukemic and leukemic forms.

It is generally recognized that specific changes in the skin are more rarely associated with myelosis than with lymphadenosis. For this reason the following case of leukemic myelosis with associated specific nodular infiltrates in the skin was considered worthy of record.

REPORT OF A CASE

History.—P. S., a white man, aged 55, a merchant, was admitted to St. Luke's Hospital on April 28, 1931, under the care of Dr. Ellery Edwards, and it was with his permission that I was able to study this patient. The patient complained of weakness, shortness of breath, pains in the joints and inability to work. A maternal aunt had died of tuberculosis. There was no history of cancer in the family. He had been married for twenty-six years. His wife and one child were living and well. Partial deafness in the right ear had resulted from a discharge from that ear eight years before the examination. He had had pneumonia at the age of 18. He said that he had not had syphilis or gonorrhea.

The illness began insidiously the first part of January, 1931, with shortness of breath and throbbing sensations in the head on exertion. The patient gradually became weaker and had to give up his work the first of March. At this time he noticed that his skin was paler than usual. During the first week of April (three weeks before coming to the hospital) he noticed a few small nodules over the chest. Two weeks later numerous similar nodules appeared over the trunk, upper arms and thighs. There were no associated symptoms. Various medicines, taken internally, failed to exert an influence on the eruption. Since the beginning of his illness he had lost 17 pounds (7.7 Kg.), and he weighed 128 pounds (58.1 Kg.) at the time of examination.

From the Department of Dermatology and Syphilology and the Department of Pathology, Saint Luke's Hospital.

Read at the Fifty-Fifth Annual Meeting of the American Dermatological Association, Havana, Cuba, May 5, 1932.

1. Arndt, G.: Diseases and New Growths of Lymphatic Origin, J. A. M. A. 63:1268 (Oct. 10) 1914.

Examination.—The patient was a fairly well nourished, pale man of 55, who was partially deaf. He was lying in bed, not acutely ill. The hair of the scalp was lusterless. Careful examination of the scalp revealed no lesions. The pupils were equal and regular in outline and reacted promptly to light and in accommodation. The teeth were in poor condition, revealing numerous caries. There was some pyorrhea of the gingival margins. Involving the buccal mucosa on the left side, the lower lip and the gum just above the upper central incisors were about ten noninflammatory papules the size of a glass pinhead. The color of these lesions was the same as the surrounding mucous membrane. Involving the trunk and to less extent the thighs and upper parts of the arms was an eruption of numerous brown to purple, painless, firm, noninflammatory nodules, varying in size from that of a glass pinhead to that of a cherry (fig. 1). Most of the nodules were elevated and intimately associated with the skin and were movable with it, while a few were more deeply seated in the subcutis. The sites of

Fig. 1.—Photograph showing the nodules involving chiefly the lower part of the back.

election for the lesions were the abdomen and the lower part of the back. There was a pedunculated fibroma, the size of a cherry, between the scapulae.

The heart and lungs were normal. The liver was palpable two finger-breadths below the margin of the ribs in the right nipple line. The edge was firm and smooth. Repeated attempts failed to reveal a palpable spleen. There was no palpable enlargement of the cervical or epitrochlear lymph glands. There was a pea to bean sized, shotty, painless, discrete, axillary and inguinal adenitis. The genitalia were normal. Examination of the bones and joints revealed no pathologic changes excepting some tenderness over all the joints. The reflexes were present, equal and active.

The Wassermann reaction of the blood and the urinalysis were negative. Examination of the eyegrounds showed no abnormality. The disturbance in hearing was due to advanced catarrhal deafness.

Treatment and Course.—The patient remained in the hospital from April 28 until May 24, 1931. On April 30, he received one skin unit of x-rays filtered through 3 mm. of aluminum over the anterior wall of the chest. On May 1, he had two thirds of a skin unit through 3 mm. of aluminum over the anterior surface of the spleen, and on May 4, the same dosage over the side wall of the chest over the spleen. The first blood count, made on April 28, showed 2,500,000 red cells and 50 per cent hemoglobin. The blood platelets numbered 396,000; the white blood cells, 83,000. A blood smear stained according to Giemsa's method showed 37 per cent polymorphonuclear neutrophilic leukocytes, 3 per cent eosinophils, 2 per cent small lymphocytes, 2 per cent large lymphocytes, 31 per cent neutrophilic myelocytes, 3 per cent eosinophilic myelocytes, 6 per cent basophilic myelocytes, 7 per cent myeloblasts, 2 per cent normoblasts, 3 per cent degenerated forms and 4 per cent monocytes. Many of the myeloid cells were oxidase-positive. Under the influence of roentgen therapy the blood count dropped to 4,800 on May 9. On May 23, the day before discharge, the blood count was a follows: 1,650,000 red blood cells, 37 per cent hemoglobin and 24,600 white blood cells. A differential count showed 61 per cent polymorphonuclear neutrophilic leukocytes, 7 per cent eosinophils, 14 per cent small lymphocytes, 3 per cent large lymphocytes, 10 per cent neutrophilic myelocytes, 1 per cent myeloblasts, 1 per cent eosinophilic myelocytes and 3 per cent degenerated forms.

Histologic Study.—The following microscopic studies of the biopsy specimens were made by Dr. R. Dominguez of the department of pathology.

On April 30, a nodule was removed from the chest about 1 inch (2.5 cm.) to the right of the ensiform cartilage. This was fixed in Helly's solution[1a] and embedded in paraffin, and sections were stained with hematoxylin and eosin, Giemsa-May-Grünwald solution, azo-carmine, Masson's trichrome and iron hematoxylin.

One of the slides stained with hematoxylin and eosin will be used for the purpose of description, and all of the information obtained from the other preparations will be incorporated in the main description without special mention unless necessary. The section measured 8 mm. along the epidermis and 4 mm. from the epidermis to the deepest part of the corium. The epidermis showed no abnormality. In the corium there were a diffuse cellular infiltration and a nodular infiltrate, the general distribution of which can be seen in figure 2. The papillary layer was free in the major portion of the section, but over the central part of the infiltrate it showed abundant swollen capillaries surrounded by a slight cellular infiltrate. The deep portions of the corium were relatively free, and no infiltration was found in the small portion of adipose tissue present in the section. The diffuse cellular infiltrate was fairly uniform in its cellular character. The nodule, on the other hand, was made up of several coalescing areas differing in cell composition from one another and from the diffuse infiltrate. In all, four different cellular complexes could be distinguished; these will be described separately and referred to as types A, B, C and D, respectively. The distribution of these types has been indicated in figure 2. Type A was found in the diffuse infiltrate; the other types, within the nodule.

Type A (stippled area of fig. 2): This type consisted of polymorphonuclear leukocytes, a few eosinophils and large granular mononuclear cells with the mor-

1a. Helly's solution is made up of two solutions, A and B. Solution A is compounded of potassium bichromate, 2.5 Gm.; water, 100 cc.; mercuric chloride, enough to saturate. This solution keeps. Solution B is commercial formaldehyde solution. Just before use, mix 9 parts of solution A and 1 part of solution B.

phology and staining qualities of myelocytes, both eosinophilic and neutrophilic. The infiltrate occupied the interstices of the collagenous fibers and became more abundant around some of the capillaries, which were enlarged and thickened (fig. 3*A*). In these areas there was a scant reticulum. In parts of the infiltrate the eosinophilic elements were more abundant than in others. Mitotic figures were not common. A few of the cells were probably dividing endothelial cells.

Type B (cross-hatched area of fig. 2).: This consisted almost exclusively of large, roughly rounded, mononucleated cells with abundant granular cytoplasm. The nuclei were large, and the chromatin was arranged in coarse granules. The granules of the cytoplasm in some of the cells stained a light purplish color with Giemsa-May-Grünwald solution, while in others there were typical coarse eosinophilic granules. Several mitotic figures were present, and in the cytoplasm of one of these dividing cells there were eosinophilic granules. Within these areas there were a few capillaries, and in one there was a large nonmyelinated nerve (fig. 3*B*). There were only a few coarse collagenous fibers, most of them in connection with the adventitia of the vessels.

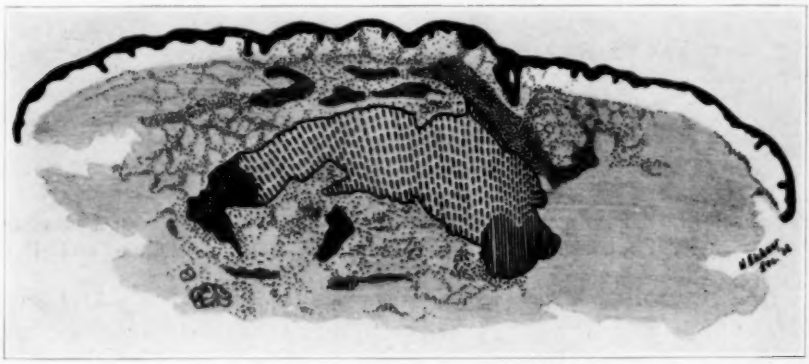

Fig. 2.—Photograph of a drawing of the first biopsy specimen from the skin; × 25, reduced to one-half by the photograph. Epidermis, solid black. Reticular layer of corium, shaded portion. Stippled areas, diffuse cellular infiltrate, described in text as type A. Cross-hatched areas, cellular infiltrate of type B. Lined area, cellular type C. Interrupted line area, infiltrate type D.

Type C (lined area of fig. 2): This consisted of large mononucleated cells with abundant granular cytoplasm, differing from those of the preceding type in that they were less granular and their nuclei stained much paler. This infiltrate was found in the coil of a sweat gland, the loops of which were separated by the infiltrating cells, but were otherwise normal. In this area the eosinophilic mononucleated cells were especially abundant. Collagenous fibers were sparse.

Type D (interrupted line area of fig. 2): This type, as can be seen from figure 2, constituted the major portion of the nodule. It was strikingly different from the preceding types. The majority of the cells were large and pale, and their cytoplasm contained practically no granules. The nuclei in many of the cells were elongated, oval or sausage-shaped; they were distinctly vesicular, and the chromatin granules were fewer and finer than those of the predominant cells in types B and C. The majority of these cells were interpreted as endothelial cells. In addition, there were in these areas numerous lymphocytes, not scattered throughout, but grouped in irregularly sized foci here and there. There was an abundant

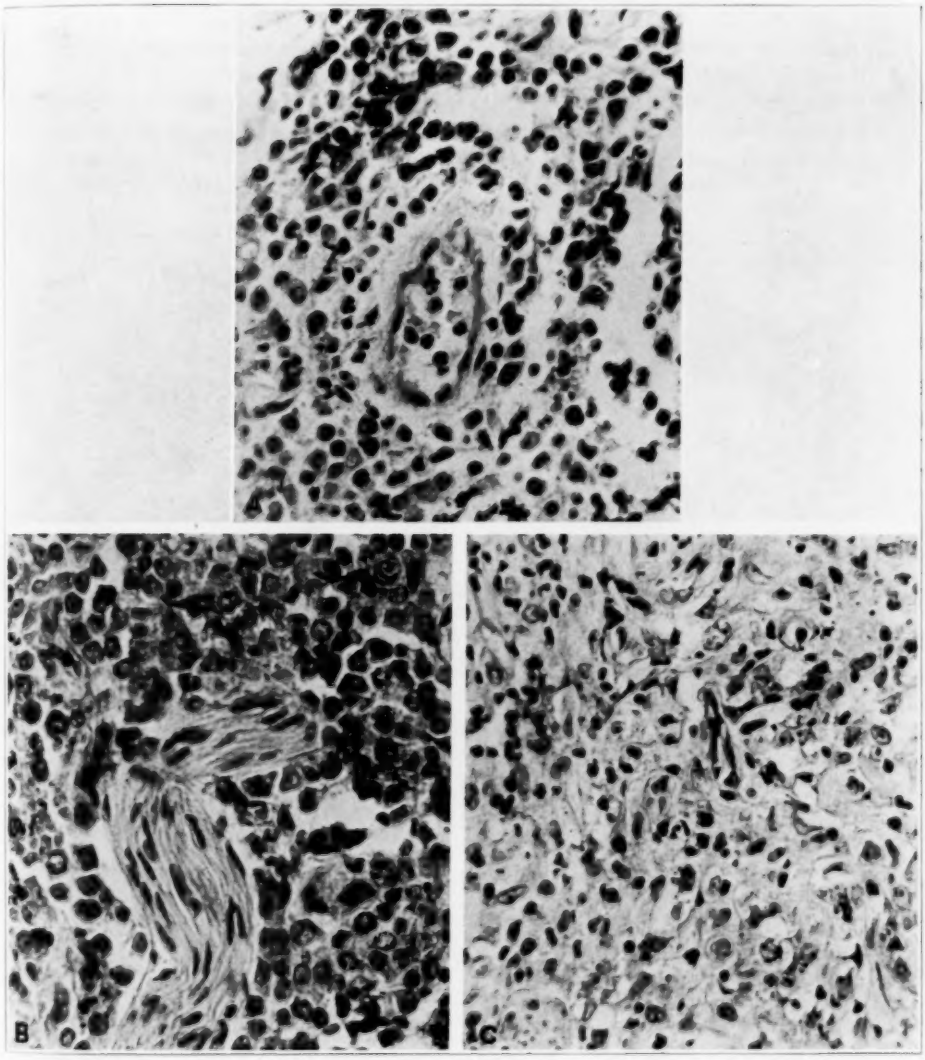

Fig. 3.—Photomicrographs of different areas of the first biopsy (fixation in Helly's fluid, paraffin embedding, iron hematoxylin stain). The photomicrographs were taken at the same magnification, and the negatives and prints were handled in exactly the same way so as to enable comparison. *A*, cellular infiltrate described in the text as type A, the distribution of which can be seen in figure 2 as the stippled area. *B*, cellular infiltrate, type B, corresponding to the cross-hatched areas in figure 2. *C*, cellular infiltrate, type D, corresponding to the interrupted line area of figure 2. (For a description of these different types see text.)

reticulum. Its fibers were arranged somewhat concentrically with the capillaries and separate rows of cells or even individual cells. Mitotic figures were fairly abundant. Scattered throughout these areas were eosinophils and granular basophilic cells, and also a few neutrophilic myelocytes (fig. 3 *C*).

On May 12, a nodule was removed from the anterior surface of the right thigh. Half of the biopsy specimen was fixed in Helly's solution, embedded in paraffin, and stained with hematoxylin and eosin; the other half was fixed in a diluted solution of formaldehyde, U. S. P. (1:10), and frozen sections were stained for oxidase granules according to Schultze's technic. The lesion was limited to the corium as in the previous biopsy specimen. It is best described as a conglomerate of irregularly sized, somewhat rounded areas of cellular infiltration similar to type

Fig. 4.—Photomicrograph of frozen section of second biopsy, stained by Schultze's oxidase method. Note the scarcity of the granular cells in the papillary layer of the corium and the clear rounded areas in the midst of the infiltrate, corresponding to the endothelium-like reaction described in the text as type D of the first biopsy.

D of the previous biopsy. Outside these areas there was also a diffuse cellular infiltration similar to type A of the first biopsy. This diffuse infiltration extended into the papillary layer over the central portion of the main lesion, but did not extend into the subcutaneous tissue. The oxidase preparations showed abundant dense, blue, granular cells in the reticular layer. The papillary layer was practically free. Within the blue infiltrate there were somewhat rounded areas containing few or no granular cells. These areas corresponded in all probability to the rounded areas of the paraffin section, which have been described as belonging to type D, that is, mainly endothelial cells (fig. 4).

A papule was removed from the mucous membrane of the gum just above the left upper central incisor tooth on May 12. This biopsy specimen was fixed in Helly's solution and stained with hematoxylin and eosin. The section measured only 3 mm. in length. It showed no abnormality of the epidermis and no cellular infiltrate in the corium.

A lymph gland excised from the right inguinal region on May 13 was fixed in Helly's solution and stained with hematoxylin and eosin. The section showed some senile changes and fibrous involution of the central portion. The lymph follicles were atrophic. Only one well formed follicle with secondary nodules was seen in the whole section. The cortex was made up of lymphoid tissue, with moderate swelling of the reticulo-endothelial cells. In the subcapsular spaces there were lymphocytes, swollen desquamated endothelial cells and occasional polymorphonuclear leukocytes. The capillaries and small vessels were moderately engorged with blood and contained polymorphonuclear leukocytes and eosinophils. Many eosinophils were seen throughout the lymphoid tissue. The medulla was represented by a few lymphatic spaces, the lumens of which were filled with endothelial cells. There were eosinophils within the capsule and also within the trabeculae of the cortex. Eosinophils and a few basophils (mast cells) were readily seen in the Giemsa-May-Grünwald preparation. Otherwise, there were no structural changes in the lymph node.

The condition of the patient did not change materially during his stay in the hospital. He was discharged on May 24. Attempts were made subsequently to have him return to the hospital for observation, but without success. It was learned through his physician that he died the latter part of June, 1931, but unfortunately autopsy was not available.

REVIEW OF THE LITERATURE

Disregarding the so-called leukemids, a review of the available literature indicates that the lesions of the skin associated with the myeloses, appearing clinically specific, may be conveniently divided into three groups. The first group consists of cutaneous manifestations without histologic investigation. Group two includes lesions that histologically fail to reveal a myeloid structure. In the third group are lesions of the skin with typical myeloid changes.

Case reports falling into the first group have been made by Hindenberg,[2] Hirschlaff,[3] Sternberg,[4] Nékám,[5] Arndt,[6] Ueberschär,[7] Hoff,[8]

---

2. Hindenberg, W.: Deutsches Arch. f. klin. Med. **54**:209, 1895.

3. Hirschlaff, cited by Bruusgaard, E.: Arch. f. Dermat. u. Syph. **106**:105, 1911.

4. Sternberg, C.: Wien. klin. Wchnschr. **24**:1623, 1911.

5. Nékám, cited by Ketron, L. W., and Gay, L. N.: Myeloid Leukemia of the Skin, Arch. Dermat. & Syph. **7**:176 (Feb.) 1923.

6. Arndt, G.: Zentralbl. f. Haut- u. Geschlechtskr. **16**:13, 1925.

7. Ueberschär: Zentralbl. f. Haut- u. Geschlechtskr. **19**:346, 1926.

8. Hoff, F.: Virchows Arch. f. path. Anat. **261**:142, 1926.

Hegler,[9] Naegeli,[10] Winiwarter,[11] Bolaffi,[12] Decastello [13] and Weil and Isch-Wall.[14] These cases need no further elaboration.

A few of the cases falling into the second group were accepted as cases with specific changes in the skin by subsequent writers on the subject, in spite of the fact that the microscopic studies of the cutaneous lesions were not conclusive. This is particularly true of the patient studied by Rolleston and Fox [15] and by Burckhardt.[16] The case recorded by Burckhardt is of interest, since it was interpreted as a typical example of myeloid erythroderma by Hartmann.[17] A careful review of this case does not allow this interpretation. Burckhardt's case, in view of the history and description of the eruption, suggests more a chronic seborrheic eczema with a secondary pyoderma as a result of therapy. The number of myelocytes in the section of the skin was not greater than one would expect to find in any nonspecific inflammatory dermatitis occurring in a patient with leukemic myelosis.

The case studied by Rodler-Zipkin [18] cannot be included in the second group because the myeloid nature of the disease was not definitely established, and it is discussed here only because Hartmann [17] accepted it as an example of myeloid erythroderma. Her patient presented an exfoliative dermatitis which she thought was dependent on the leukemic state from both the clinical and the histologic point of view. However, the predominating pathologic cell in the blood, skin section and internal organs was not definitely proved to belong to the myelocytic series.

Additional cases to be included in the second group were reported by Kuznitsky,[19] Stalling-Schwab,[20] Tenenbaum [21] and Lutz.[22] The case

---

9. Hegler: Zentralbl. f. Haut- u. Geschlechtskr. **25**:168, 1928.
10. Naegeli, quoted by Arzt, L., and Fuhs, H., in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 35. (See this reference for a comprehensive review of the subject.)
11. Winiwarter, A., in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 107.
12. Bolaffi, A., in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 30.
13. Decastello, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 113.
14. Weil, P. E., and Isch-Wall, P.: Bull. et mém. Soc. méd. d. hôp. de Paris **47**:84 (Jan. 26) 1931.
15. Rolleston, H. D., and Fox, W.: Brit. J. Dermat. **21**:377, 1909.
16. Burckhardt, J. L.: Frankfurt. Ztschr. f. Path. **6**:167, 1911.
17. Hartmann, E.: Dermat. Ztschr. **49**:52, 1927.
18. Rodler-Zipkin, R.: Virchows Arch. f. path. Anat. **197**:135, 1909.
19. Kuznitsky: Ztschr. f. klin. Med. **101**:386, 1925.
20. Stalling-Schwab, J. B.: Zentralbl. f. Haut- u. Geschlechtskr. **35**:638, 1931.
21. Tenenbaum, J. L.: Myeloid Leukemia of the Skin, Arch. Dermat. & Syph. **10**:557 (Nov.) 1924.
22. Lutz, W.: Arch. f. Dermat. u. Syph. **131**:154, 1921.

presented by Whitehouse [23] before the New York Dermatological Society as one of myelogenous leukemia with nodules involving the face proved on subsequent examination [24] to be lymphatic leukemia.

In the following discussion no attempt has been made to differentiate between acute (myeloblastic leukemia) and chronic myelosis.

There were only twenty-one cases recorded in the literature that would fall into the group of specific changes in the skin. The lesions in all of these cases presented a definite myeloid structure histologically. A positive oxidase reaction was found in six cases.

Specific changes in the skin may occur in the course of aleukemic, subleukemic or leukemic myelosis. Gans [25] described the case of a patient with polycythemia who presented a deep infiltrated mass over the right hip with specific microscopic changes (aleukemic myelosis). In the case studied by Ketron and Gay,[26] the cutaneous lesions antedated the development of the leukemic changes in the blood. This early stage may be considered an aleukemic myelosis, as indicated in the discussion by Hazen. Arzt [27] reported the case of a patient with a subleukemic blood picture who presented a specific papular eruption over the trunk. Herxheimer [28] described a patient with a nodular eruption over the body with subleukemic changes in the blood. Autopsy revealed a tumor-like proliferation in the liver, kidneys, dura, thyroid gland and pericardium. A microscopic study of these tumor-like proliferations, but more particularly of the excised skin nodule, showed an infiltration of myeloblasts with a negative oxidase reaction. The myeloblasts in the blood vessels in and around the infiltrates, in the blood and in preparations of the spleen and bone marrow gave a positive oxidase reaction. This unusual reaction to the oxidase stain of the myeloblasts in different locations constitutes the most striking feature of this case. Herxheimer believes that this is explained by the origin of the organic and skin infiltrates in situ from the adventitial cells of the blood vessels and to a lesser extent from the spindle-shaped cells of the connective tissue. The myeloblasts in the infiltrates were oxidase-negative, owing to the rapidity of

---

23. Whitehouse, H. H.: Myelogenous Leukemia, Arch. Dermat. & Syph. **18:** 799 (Nov.) 1928.

24. Whitehouse, H. H.: Personal communication to the author.

25. Gans, O.: The Skin Picture in Hematopoietic Diseases, Arch. Dermat. & Syph. **16:**1 (July) 1927.

26. Ketron, L. W., and Gay, L. N.: Myeloid Leukemia of the Skin, Arch. Dermat. & Syph. **7:**176 (Feb.) 1923.

27. Arzt, L.: Zentralbl. f. Haut- u. Geschlechtskr. **31:**416, 1929; in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 40; Arch. f. Dermat. u. Syph. **160:**84, 1930.

28. Herxheimer, G.: Virchows Arch. f. path. Anat. **254:**613, 1925.

their development, while the myeloblasts in the lumens of the blood vessels were oxidase-positive, because they were metastatic from the bone marrow and spleen.

The microscopic changes in the case studied by Ketron and Gay [26] are also of interest. A biopsy of the original nodular eruption, occurring during the course of a normal blood picture, showed an infiltrate in the corium made up of oxidase-negative cells resembling those of connective tissue or of endothelial origin. This eruption almost entirely involuted. The terminal nodular eruption appearing five weeks later was accompanied by a leukemic blood picture, and one of these nodules, which was removed at autopsy, showed an infiltration of oxidase-positive myeloid cells in the cutis.

Studies of the blood in the cases recorded by Ketron and Gay [26] and Kreibich [29] indicated that the conditions of these patients passed through a subleukemic stage, terminating in leukemic myelosis. The remaining cases, in which there were associated myeloid lesions in the skin, are classed as examples of leukemic myelosis. These were reported by Schultze,[30] Bruusgaard,[31] Lubliner,[32] Saphier and Seyderhelm,[33] Bruusgaard,[34] Almkvist and Arzt,[35] Stransky,[36] Schilling,[37] Hartmann,[17] Hudelo, Cailliau and Chène,[38] Arzt,[39] Broers,[40] Decastello [13] (2 cases), Sannicandro [41] and Langen.[42] According to Hartmann,[17] the histologic findings in the cases that had been described in detail up to the time of his report were almost the same. The epidermis showed only a flattening of the rete pegs over the infiltrate. The main mass of the infiltrate was situated in the corium and the uppermost layers of the subcutaneous tissue, grouping itself by election around the appendages of the skin.

---

29. Kreibich, C.: Arch. f. Dermat. u. Syph. **151**:417, 1926.
30. Schultze, W.: Beitr. z. path. Anat. u. z. allg. Path. **39**:252, 1906.
31. Bruusgaard, E.: Arch. f. Dermat. u. Syph. **106**:105, 1911.
32. Lubliner, R.: Folia haemat. **22**:15, 1918.
33. Saphier, J., and Seyderhelm, R.: München. med. Wchnschr. **67**:69, 1920.
34. Bruusgaard, E.: Acta dermat.-venereol. **2**:273, 1921.
35. Almkvist, J., and Arzt, L.: Brit. J. Dermat. **36**:428, 1924; in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 116.
36. Stransky, E.: Monatschr. f. Kinderh. **29**:654, 1925.
37. Schilling, D.: Verhandl. d. deutsch. Gesellsch. f. inn. Med., 1925, p. 369.
38. Hudelo, Cailliau and Chène: Bull. Soc. franç. de dermat. et syph. **35**:193, 1928.
39. Arzt, L.: Zentralbl. f. Haut- u. Geschlechtskr. **25**:58, 1928; Arch. f. Dermat. u. Syph. **155**:233, 1928; in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 117.
40. Broers, J. H., in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 8, p. 117.
41. Sannicandro, G.: Zentralbl. f. Haut- u. Geschlechtskr. **29**:508, 1929.
42. Langen, C. D.: Zentralbl. f. Haut- u. Geschlechtskr. **38**:622, 1931.

In many instances rows of cells extended out from the infiltrate between the collagen bundles and down into the fat cells. The majority of the cells in the infiltrate belonged to the myelocytic series, although occasionally mast cells, lymphocytes, polymorphonuclear leukocytes and red blood cells were observed.

Argaud and Montpellier [43] described the case of a 72 year old woman with a pedunculated tumor the size of a cherry, involving the ala of the nose. Histologically, this tumor revealed a myeloid structure, but unfortunately no blood studies were made, so that it is impossible to classify this case.

From a study of the lesions associated with the cases recorded in group 3, a composite clinical picture would perhaps be as follows: The eruption consisted of pinhead to walnut sized, firm, sharply circumscribed, brown or bluish, asymptomatic nodules involving chiefly the trunk, more rarely the extremities, the face and the scalp. The nodules either projected above the level of the surrounding skin and were intimately attached to it or were situated more deeply in the subcutis. Occasionally they became confluent, forming larger plaques. In isolated instances the nodules showed ulceration, purulent degeneration, crusting, scaling, hemorrhages and telangiectasia. Almkvist and Arzt [35] described a nodule involving the lower lip, which clinically suggested a chancre. Herxheimer [28] described, in addition to the pinhead to nickel sized nodular eruption over the body, a small tumor the size of a fist, involving the nape of the neck. Examples of involvement of the oral mucous membrane were occasionally recorded, but in only two cases [44] was the specific character established by microscopic examination. Itching and pain were unusual associated symptoms. The number of lesions varied from one tumor (Gans)[25] to numerous nodules involving almost the entire skin (Ketron and Gay [26]).

Myelosarcoma and the myeloid type of so-called chloroma represent atypical proliferation of myeloid tissue. These conditions may have associated specific changes in the skin which histologically are indistinguishable from those occurring during the course of myeloses.

Under the term myelosarcoma (the myeloid analog of leukosarcoma), Sternberg [45] has described a disease characterized by a tumor-like proliferation of the myeloid hematopoietic tissue, usually with an associated leukemic blood picture. The majority of investigators, how-

43. Argaud and Montpellier: Ann. de dermat. et syph. **2**:391, 1921.

44. Almkvist and Arzt.[35] Arzt.[39]

45. Sternberg, C.: (*a*) Verhandl. d. deutsch. path. Gesellsch. **8**:139, 1904; (*b*) Beitr. z. path. Anat. u. z. allg. Path. **61**:75, 1916; (*c*) Wien. klin. Wchnschr. **34**:158 (April 7) 1921; (*d*) in Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1926, vol. 1, p. 86.

ever, regard myelosarcoma as a variety of myelosis (Herxheimer,[28] Schultze [30] and Domarus [46]), which, according to Graetz,[47] for unknown reasons takes on a local aggressive character. Cases of this type, recorded prior to the introduction of more advanced hematologic methods, particularly the oxidase reaction, were interpreted differently by different investigators. This difficulty in interpretation was due chiefly to the failure to assign definitely the predominant pathologic cell involved in the leukemic process to either the myelocytic or the lymphocytic series. The cases studied by Schultze [30] and Buschke and Hirschfeld [48] illustrate this point.

The patient studied by Schultze was a 13 year old boy who presented numerous, partly ruptured, partly purulent, hemorrhagic vesicles (due to secondary infection) on the face, back, right hand and lower extremities. In addition, the face and back of the neck showed bluish-black, boil-like elevations. There were 560,000 white blood cells, the majority of which were atypical large mononuclear leukocytes. At autopsy, the organic changes suggested myelosis, but Paltauf,[49] on the basis of the enlargement of the mesenteric glands and nodules in the intestines, diagnosed the case as one of leukosarcoma. At this time the type of cell found in the blood and tissue infiltrates was not definitely determined. A few years later, however, Schultze [50] applied the oxidase reaction to the organs, and on the basis of a positive precipitation the cells were proved to be myeloblasts, and the case was then diagnosed as one of myeloblastic leukemia (acute leukemic myelosis). The myeloid nature of the disease was then admitted by Paltauf.[51]

Buschke and Hirschfeld [48] recorded a case under the diagnosis of leukosarcomatosis cutis. A 22 year old girl presented a generalized cherry to plum-sized, nodular eruption, with a normal blood count. At this time stained preparations of a drop of blood obtained by puncturing a nodule on the skin revealed atypical large lymphocytes and mononuclear cells. About four and a half months later the number of white blood cells was elevated to 33,000, consisting almost exclusively of atypical large lymphocytes. The patient died five and a half months after the appearance of the nodules. Autopsy showed tumor formations in the bone marrow, mesentery, mucosa of the stomach, intestine, ovaries, parametrium and dura. Histologic investigation of a skin nodule and the internal organs showed an infil-

46. Domarus, A., in Kraus, F., and Brugsch, T.: Spezielle Pathologie und Therapie, Berlin, Urban & Schwarzenberg, 1920, p. 375.

47. Graetz, F.: Beitr. z. path. Anat. u. z. allg. Path. **49**:338, 1910.

48. Buschke, A., and Hirschfeld, H.: Folia haemat. **12**:73, 1911.

49. Paltauf, R., in Mraček, Franz: Handbuch der Hautkrankheiten, Vienna, A. Hölder, 1909, vol. 4, p. 670.

50. Schultze, W.: München. med. Wchnschr. **56**:167, 1909.

51. Paltauf, R.: Wien. klin. Wchnschr. **25**:46, 1912.

tration of the atypical large lymphocytes. The authors refused to state whether the large cells belonged to the lymphocytic or the myelocytic series. Herxheimer,[28] however, interpreted the case as one of myeloblastic leukemia.

According to the present conception, chloroma [52] is not regarded as a disease entity. In the earlier literature postmortem studies showed that many of these cases [53] revealed hyperplastic changes of the hematopoietic system indistinguishable, with the exception of the green color, from lymphadenosis and myelosis. The green color that originally gave the process its name was regarded as an incidental finding. In order to emphasize the presence of the green color, the terms chlorolymphadenosis and chloromyelosis were used, depending on which system was involved. Other cases that came to autopsy showed a green tumor-like hyperplasia of the hematopoietic system. Sternberg suggested [52] that these cases be called chloroleukosarcoma or chloromyelosarcoma according to whether the hyperplastic changes are found in the lymphoid or the myeloid tissue. More recently Brannan,[54] in a survey of the literature up to 1926, found that the better studied cases of chloroma were of myelogenous origin, and he expressed the belief that chloroma is an unusual form of myelogenous leukemia.

In the opinion of most authors the myeloid type of so-called chloroma represents a variety of myelosis differing only in the green color (Herxheimer,[28] Domarus [46] and Herz [55]).

Since the majority of investigators consider myelosarcoma, chloromyelosarcoma and chloromyelosis as varieties of myelosis, it is thought justified to include the specific changes in the skin occasionally associated with these processes in the same group with the cutaneous myeloses, regarding them as visible expressions of fundamentally similar, deeper seated pathologic changes. Cases of this type have been recorded by Sternberg (chloromyelosarcoma [45a]), Jacobäus (chloromyelosarcoma [56]), Mieremet (myeloid chloropseudoleukemia [57]) and Zurhelle (myeloid subleukemic chloroleukemia [58]).

CONCLUSIONS

1. A case of leukemic myelosis with associated specific nodular infiltrates in the skin is recorded.

52. Sternberg, C., in Henke, F., and Lubarsch, O.: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, 1926, vol. 1, p. 89.
53. Lehndorff, H., in Kraus, F., and Brugsch, T.: Spezielle Pathologie und Therapie, Berlin, Urban & Schwarzenberg, 1920, vol. 8, p. 573.
54. Brannan, D.: Bull. Johns Hopkins Hosp. **38**:189, 1926.
55. Herz, A.: Folia haemat. **13**:408, 1912.
56. Jacobäus, H. C.: Deutsches Arch. f. klin. Med. **96**:7, 1909.
57. Mieremet, C. W. G.: Virchows Arch. f. path. Anat. **215**:353, 1914.
58. Zurhelle: Dermat. Ztschr. **37**:1, 1922.

2. A review of the literature indicates that cases of this type are rare.

3. In the present state of knowledge, myelosarcoma and the myeloid type of so-called chloroma are regarded as varieties of myelosis. It is therefore justified to consider the specific changes in the skin associated with these processes in the same light as cutaneous myelosis, regarding them as visible expressions of similar changes in the myeloid hematopoietic system.

NOTE.—Since the writing of this article, a case recorded by Nékám [59] has come to my attention. His patient, a woman, aged 62, presented hematologic evidence of a subleukemic myelosis (the white blood cell count was 21,000, with 94 per cent myeloblasts). Involving the trunk and extremities were small pea to bean sized, slightly elevated, brown to bluish, firm nodules, which on histologic examination were found to consist chiefly of oxidase-negative myeloblasts. This case would fall into my third group.

Dr. R. Dominguez, of the department of pathology, allowed me to use the photomicrographs.

ABSTRACT OF DISCUSSION

DR. HAMILTON MONTGOMERY, Rochester, Minn.: I was much interested in Dr. Barney's paper, as I have had the opportunity of seeing three cases of myelogenous infiltration of the skin. One of these cases was a generalized but not universal erythroderma which clinically did not present the features of any one of the lymphoblastomas. The second case was a localized form of myelogenous leukemia cutis. Of greater interest are the following cases. Two years ago I took sections from two cases of lymphoblastoma that came to necropsy, in which there was no macroscopic involvement of the skin. In one case the internist had made a diagnosis of acute myelogenous leukemia, and in the other case, of chronic lymphatic leukemia. There were dense collections of cells of the myelocytic series in the subcutaneous tissues in one case, and of the lymphocytic series in the other case. In cases in which the clinician is in doubt, the question might be raised whether in some instances the lymphoblastomatous process might be found in the early stages of its development if he were to take sections from apparently normal skin.

DR. ROBERT E. BARNEY, Cleveland: Dr. Montgomery's observation that myeloid cells may be found in the normal skin in myelogenous leukemia brings up a point that I mentioned in my paper. In some cases of myeloid leukemia with associated exfoliative dermatoses the authors have tried to regard these expressions as a specific form of the disease because a few myelocytes were present. I ruled out, for this reason, one case recorded in the literature as a specific generalized exfoliative dermatitis.

An interesting sidelight on this true involvement of the skin is the question of the origin of the infiltrate. In two recorded cases, the authors (Herxheimer and Zurhelle) believed that the origin was in situ from the cells of the walls of the blood vessels. This view cannot be proved or disproved unless we can study early and late lesions from the same patient. If I had been able to get an early lesion in my case, we might have been able to say something more definite concerning the origin of the process.

---

59. Nékám, L., Jr.: Dermat. Ztschr. **62**:158, 1931.

THE TRICHOPHYTIN TEST

REPORT OF THREE HUNDRED AND FIFTY CASES

EMANUEL MUSKATBLIT, M.D.
AND
WILLIAM DIRECTOR, M.D.
NEW YORK

TECHNIC

Although thirty years have elapsed since Plato and Neisser first prepared trichophytin and studied its diagnostic application in fungous diseases of the skin, the question of the specificity and the diagnostic value of the trichophytin reaction is still under discussion. Several trichophytins have been made by various authors from different fungi, but a standardized and universally recognized preparation is still lacking. Under such circumstances we felt justified in making a preparation of our own of recently isolated strains of fungi of common occurrence in our clinic. In our extract Trichophyton violaceum, Microsporon audouini and Epidermophyton interdigitale were used. These strains were grown separately in liquid medium—Sabouraud's broth (dextrose massée, 4 per cent; peptone, 1 per cent in water). After solution of all the materials, the medium was filtered through paper, distributed in several 250 cc. flasks, each of which contained about 150 cc. of medium, and sterilized in the autoclave at 120 C. Fungi grew in this medium for three months. The solid fungous growth was then separated from the liquid by filtration through paper, ground in mortar and extracted with the corresponding fluid portion by being allowed to stand twenty-four hours in the icebox. Further filtration was carried out through paper, the filtrate sterilized by means of a Berkefeld filter, and phenol added to make a 0.25 per cent solution to prevent bacterial contamination. Equal parts of the three extracts of different fungi were mixed; the final product was distributed in sterile vaccine bottles with a capacity of 5 and 10 cc. which were hermetically plugged with sterile rubber plugs and stored on ice for use. The test of sterility was made by planting cultures on Sabouraud's, plain and chocolate agar, which showed no growth after one week's incubation at 37 C. The preparation remained clear and transparent without any signs of contamination for more than a year. It contained the endo-products as well as the exo-products of fungi and was not a pure trichophytin, but a mixture of trichophytin, microsporin and epidermophytin, which could be called simply "phytin." The control tests were made with the same sterilized liquid medium, with 0.25 per cent phenol, but without fungous growth. The extract was taken from the bottle by piercing the rubber plug previously washed with alcohol with a sterile hypodermic needle on a tuberculin syringe. The test was performed by injecting intradermally 0.1 cc. of undiluted extract on the flexor surface of one forearm; the control solution was similarly injected on the opposite forearm. The injection produced a white, sharply defined wheal about 1 cm. in diameter, which soon disappeared. No cutaneous reaction was observed from the control test.

From the Department of Dermatology and Syphilology, University and Bellevue Hospital Medical College, service of Dr. Howard Fox.

INTERPRETATION OF THE TEST

In forty-eight hours a negative test showed only a red dot at the site of injection or a pinkish spot not larger than the primary wheal ("depot" reaction). We called the test weakly positive when it showed an erythematous patch, usually from 2 to 4 cm. in diameter, and strongly positive, when there was an infiltration of one large or several small papules which at times became vesicular. The latter were occasionally surrounded by a bright red halo. The reaction reached its full development in forty-eight hours and disappeared in about a week. General reactions were not observed. The following deviations from the normal, due probably to individual peculiarities of the patient's skin, were noted: (1) delayed reaction (5 cases), which appeared only on the third to the fifth day after the injection; (2) increasing reaction (3 cases), which continued to develop in intensity during from three to seven days, and (3) persistent reaction (20 cases), which remained longer than normally, sometimes for several weeks.

RESULTS

Three hundred and fifty patients examined microscopically and culturally were tested; the condition of 300 of these was clinically diagnosed as mycotic. Fifty cases which were negative for fungi on clinical and laboratory examinations served as controls.

The trichophytin test was positive in 181 of 300 clinically positive cases (60.3 per cent), while in only 2 of 50 (4 per cent) control cases was it weakly positive, which indicates the specificity of the reaction. The control group consisted of miscellaneous dermatoses, including 3 cases of pityriasis rosea, of which only 1 showed a weakly positive reaction. Another apparently nonspecific reaction occurred in a patient with folliculitis of the face and eczema of the hands.

Comparison between the clinical diagnosis and the test showed that 181 patients were positive both clinically and by test; 48 were negative clinically and by test; 119 clinically positive cases showed a negative test, and 2 clinically negative cases a positive test. The test was therefore in agreement with the clinical diagnosis in 229 of 350 cases (65.4 per cent) and in disagreement in 121 cases (34.6 per cent). Similar comparison between the clinical diagnosis and laboratory findings showed that they were in agreement in 169 of 350 cases (48.3 per cent) and in disagreement in 181 cases (51.7 per cent). Consequently, the clinical diagnosis was more frequently corroborated by the test (65.4 per cent) than by the laboratory findings (48.3 per cent).

A positive reaction was found in all clinical forms of mycoses observed except favus and erythrasma. In cases of onychomycosis and erosio interdigitalis the percentage of positive tests was below the aver-

age, while in cases of tinea capitis, barbae, cruris and circinata it was above the average. There was no direct relationship between the result of the test and the extent of the lesions. A positive reaction occurred almost as frequently in patients with generalized eruptions as in those with limited involvement of the skin. The test was positive, for instance, in 15 cases in which only the toe-webs were affected. There was, however, a certain correlation between the reaction and the degree of inflammation in the lesions.

The test was positive in 46.6 per cent of cases with mild inflammation and in 64.8 per cent with strongly inflammatory lesions. Obviously there is a certain parallelism between the local reaction of the skin to fungi and to their products in the form of inflammation and a general reaction of the organisms which manifests itself in the form of skin allergy and a positive reaction.

TABLE 1.—*Trichophytin Test and Clinical Forms of the Disease*

Clinical Form of the Disease	Test Positive	Test Negative	Total of Cases	Per Cent of Positive Tests
Dermatophytosis	154	105	259	59.5
Tinea capitis	8	0	8	100.0
Tinea barbae	2	0	2	100.0
Tinea circinata	5	2	7	71.4
Tinea cruris	9	4	13	69.2
Onychomycosis	2	2	4	50.0
Erosio interdigitalis	1	4	5	20.0
Favus	0	1	1	0.0
Erythrasma	0	1	1	0.0
Total	181	119	300	60.3

TEST AND LABORATORY FINDINGS

Fungi were found microscopically or in cultures in 119 of 300 (39.7 per cent) clinically positive cases. Fifty clinically negative cases were also negative on laboratory examination. Preparations which contained only so-called "mosaic bodies" were considered microscopically negative. Eighty-six fungus-positive cases were also positive by test, and 134 fungus-negative cases were negative by test. Thirty-three fungus-positive cases gave a negative reaction and 97 fungus-negative cases gave a positive reaction. The trichophytin test was therefore in agreement with laboratory findings in 220 cases (62.9 per cent) and in disagreement in 130 cases (37.1 per cent).

The percentage of positive reactions was higher in fungus-positive cases than in fungus-negative ones (72.3 per cent against 42), though these two factors are not parallel. The test does not show the presence of a fungous infection as such, but reveals only the presence of allergy toward fungous products. When the process is superficial, the toxicity of fungi is low, and when their toxins are not absorbed or the organism

is incapable of producing immune bodies, the allergy will be absent and the reaction will be negative. On the other hand, a negative laboratory result does not prove that fungi are absent, particularly in cases with a strong inflammatory reaction of the skin when the number of parasites present may be insignificant, since they are destroyed by the inflammation and accumulation of immune bodies. In such cases the allergy may reach a high degree, and the test is positive, while examination for fungi gives a negative result. Prolonged treatment previous to laboratory examination also diminishes the chances of finding fungi in skin scrapings or in cultures.

A negative test and absence of fungi in a clinically mycotic case may depend on the low viability and poor development of fungi in the lesions. They suffice to produce a local reaction of the skin but are not numerous enough to be found in skin scrapings and not toxic enough to produce a general allergic condition of the skin.

TABLE 2.—*Trichophytin Test and Species of Fungi*

Fungus	Reaction Positive	Reaction Negative	Total Cases
Epidermophyton interdigitale	22	1	23
Epidermophyton rubrum	6	3	9
Epidermophyton inguinale	3	0	3
Microsporon lanosum	7	1	8
Trichophyton violaceum	2	0	2
Trichophyton gypseum	1	0	1
Achorion schönleinii	0	1	1
Microsporon minutissimum	0	1	1
Monilia	6	6	12
Total	47	13	60

In 60 cases the species of fungus was determined in cultures (except microsporon minutissimum of erythrasma).

The reaction was positive not only in cases due to pathogenic fungi of animal origin (Trichophyton gypseum, Microsporon lanosum) but also in those due to human species (Epidermophyton).

It is usually assumed that allergy in fungous diseases is not strictly specific toward a definite fungous species but is more of a group character. This question is, however, still insufficiently worked out experimentally, and the high percentage of positive reactions in Epidermophyton interdigitale infections was possibly due to the presence of a corresponding antigen of the same fungus in the preparation used. Similarly, the negative reaction in a case of favus might be explained, not by the absence of allergy, but by its more specific character. Our extract did not contain the products of the fungus Achorion. In the cases of favus in which there was no reaction to the extracts of other fungi, however, sometimes there was a positive reaction with an extract of Achorion (favin). The last group of cultures consisted of 12

monilias. The reaction was strongly positive in 5 patients with superficial intertriginous lesions due to monilia and was weakly positive in a case of monilia infection of the finger-nails.

Summary of all fungous species observed: (1) Filamentous fungi and (2) yeastlike fungi (Monilia) showed that the test was positive in 41 of 48 cases due to filamentous fungi (85.4 per cent), that is, almost twice as common as in cases with monilia infections, in which the test was positive in only 6 of 12 cases (50 per cent).

SUMMARY

1. A method of preparation of a polyvalent fungous extract containing endoproducts and exoproducts of Epidermophyton, Trichophyton and Microsporon is described.

2. Three hundred and fifty patients were tested intradermally, of whom 300 were clinically mycotic and 50 were not mycotic.

3. Nonspecific reactions were observed in 4 per cent of nonmycotic cases.

4. The trichophytin test gave a positive reaction in 72.3 per cent of cases proved mycotic by the laboratory.

5. Clinical diagnosis was more frequently corroborated by the test than by the laboratory examination; for example, in clinically mycotic cases the test was positive in 60.3 per cent, while laboratory examination was positive in only 39.7 per cent.

6. Patients with highly inflammatory lesions gave a higher percentage of positive tests; however a positive reaction was found in many cases with limited and slightly inflammatory lesions.

7. The test was positive in cases in which the infection was due to various fungi of human and animal types, particularly in those caused by Epidermophyton interdigitale.

8. Monilia infections of the skin also gave a positive reaction but less frequently than cases due to filamentous fungi (Trichophyton, Epidermophyton and Microsporon).

CONCLUSIONS

1. The intradermal test with fungous extracts, while not absolutely specific, is of considerable value in the diagnosis of fungous infections of the skin due to filamentous as well as to yeastlike fungi.

2. Common fungi such as Trichophyton violaceum, Microsporon audouini and Epidermophyton interdigitale yield an efficacious preparation when a mixed polyvalent extract is made of freshly isolated strains.

3. General allergic hypersensitiveness of the skin develops not only in deep inflammatory mycoses but also in many cases of superficial type.

4. Epidermophyton interdigitale, the most common causative agent of dermatophytosis in this country, is apt to cause a considerable degree of cutaneous allergy.

URINARY PROTEOSE

ALLERGIC DERMATOSES AND THE ECZEMA-ASTHMA-HAY FEVER COMPLEX

FRANK E. CORMIA, M.D.
PHILADELPHIA

In recent communications Barber and Oriel [1] have described a complex proteose substance in the urine. This proteose is obtained from normal urine in small amounts, but is markedly increased in the asthma-eczema-hay fever complex and in cases of urticaria, simple prurigo and dermatitis herpetiformis. Furthermore, these authors have claimed that in active allergic dermatoses the patient's proteose, when injected intradermally into his skin, gives rise to a specific, inflammatory cutaneous reaction. When injected intradermally into other patients with allergic or nonallergic dermatoses, the reactions are consistently negative. Lastly, they have contended that increasing amounts of proteose injected intradermally, and perhaps later subcutaneously (as in vaccine therapy), in the aforementioned type of cases, bring about a desensitization of the allergic body cells and effect prolonged and sometimes permanent remissions. They do not claim to know the exact nature of this proteose. They describe a complex protein substance containing various amino-acids, nucleic acid, ozazone and some carbohydrate. Of the mechanism of formation and of the specific curative action of proteose they are also in doubt.

Lewis [2] described histamine bodies liberated from sensitized cells in certain allergic conditions such as asthma and urticaria.

According to Dale,[3] anaphylactic injury of cells (as in the liver) may liberate histamine into the general circulation and cause reaction in other cells not sensitive to the antigen but sensitive to histamine.

Manwaring [4] stated that antigenic sensitization in dogs is confined to the liver, where anaphylatoxin, a histamine-like substance, is produced, acting on the liver cells and on smooth muscle elsewhere. The histamine

---

From the Department of Dermatology and Syphilology, School of Medicine, University of Pennsylvania, John H. Stokes, M.D., Director.

1. Barber and Oriel: Lancet **2**:1009, 1928; **2**:231, 1930. Oriel: Guy's Hosp. Rep. **79**:376, 1929.

2. Lewis, T.: Blood Vessels of the Human Skin and Their Responses, London, Shaw & Sons, Ltd., 1927.

3. Dale: Lancet **1**:1285, 1929.

4. Manwaring: J. Immunol. **10**:575, 1925; **13**:63 and 357, 1927.

alone will not cause diminished coagulability of the blood. Histamine is probably involved in colloidal complexes with other cell constituents. After the liver of a sensitized dog is isolated from the general circulation, injection of the antigen into the blood stream has little or no effect. Anaphylatoxin is a secondary antigen, perhaps a product of the denaturization of the primary antigen.

Barber and Oriel [1] further stated that the sensitivity to urinary proteose may be specific, but that most patients show a multiple sensitivity. The antigen may be a product of the patient's own tissue produced by the reaction of multiple antigens on the sensitized liver.

Lyon, Percival and Stewart [5] worked on the problem of proteose, and found that urinary proteose was increased in allergic conditions. They did not, however, confirm the specificity claimed for it. In their series of cases the urinary proteose of both allergic and normal patients gave delayed, positive intradermal reactions in patients with allergic and nonallergic dermatoses and in normal persons. All patients, they stated, gave immediate flare reactions which came on within ten minutes after the intradermal injection and subsided within half an hour. The true reaction, according to them, was one which appeared in from two to three hours, reaching a maximum in about seven hours and disappearing after about twelve hours. In several instances the patient failed to react to his own proteose. In one of their cases the patient reacted to the proteose of another allergic person. They concluded that the proteose reaction is not specific, but is in the nature of a local inflammatory reaction occurring in a proportion of people.

Freeman,[6] working further with proteose, tested intradermally the reaction of hay fever proteose against hay fever pollen. The pollen reactions were very specific, but the proteose reactions were not. Furthermore, Freeman obtained positive proteose reactions in normal controls. He interpreted a positive reaction to mean a wheal plus an erythematous flush appearing in ten minutes and subsiding in thirty minutes. Using proteoses from patients with asthma and eczema and from two normal persons, he made a further series of intradermal tests on a series of patients with asthma, eczema and hay fever and on normal controls. He found that all proteose showed a fairly constant toxic reaction in the skin occurring within a few minutes of injection. There were many delayed reactions occurring in from twelve hours to three days, but these reactions occurred no more frequently in persons with active allergic dermatoses than in those with nonallergic dermatoses or in normal persons, and there was no indication of specific delayed reactions.

5. Lyon, Percival and Stewart: Brit. M. J. **1**:136, 1932.
6. Freeman: Lancet **1**:561, 1932.

METHOD (AFTER BARBER AND ORIEL [1])

A twenty-four hour specimen of urine was treated with a little chloroform. Four hundred cubic centimeters was made acid to congo red with sulphuric acid, and shaken with 100 cc. of ether. If urates were present, they were dissolved with dilute sodium hydroxide, and the urine was subsequently made acid. The ethereal layer was treated with an equal volume of alcohol. The precipitate was collected and centrifugated in sterile centrifuge tubes. When dry it was dissolved in 2 or 3 cc. of 1:10 sterile sodium hydroxide solution. One cubic centimeter of this solution was added to 9 cc. of 0.5 per cent phenol in physiologic solution of sodium chloride. This made a 1:100 dilution. Further dilutions of 1:1,000, 1:10,000, 1:100,000 and 1:1,000,000 were made.

Twenty-two subjects were studied, five with allergic eczema, five with urticaria, one with infantile eczema, three with chronic eczematoid dermatitis, two with pruritus, one with dermatitis herpetiformis and two with asthma and three normal persons. Each of the twenty-two subjects was given preliminary epidermal scratch tests as suggested by Barber and Oriel.[1] Then in all cases in which the scratch tests were negative, 0.05 cc. of a 1:10,000 dilution of the patient's proteose was injected intradermally on the flexor surface of the forearm. In the patients who had positive scratch tests, the intradermal test was one-tenth the strength of the least concentrated urinary proteose, which caused a positive epidermal scratch reaction. For example, the patient in case 1 gave a positive epidermal scratch reaction to a 1:10,000 dilution of his own proteose. The intradermal infection consisted of 0.05 cc. of a 1:10,000 dilution. The epidermal tests are marked *1* to *7* in figure 1; *1* is a 1:100 dilution; *2* a 1:1,000; *3* a 1:10,000; *4* a 1:100,000, and *5* a 1:1,000,000; *6* a physiologic solution of sodium chloride control, and *7*, the epidermal abrasion only. In the intradermal series a control of physiologic solution of sodium chloride was used, and all proteoses were tried in normal persons, 0.05 cc. of a 1:10,000 dilution being used. The epidermal reactions, when positive, became so in about five minutes and subsided within twenty minutes. The intradermal reactions showed two phases, early and late. The early reactions appeared in about ten minutes and disappeared within half an hour. The late intradermal reactions appeared in two or three hours and persisted up to twelve hours.

Figure 1 shows the results on patients 1 to 22 of epidermal scratch tests and intradermal injections of proteoses isolated from themselves, and the result of the intradermal injection of the same proteoses in normal persons.

Figure 2 shows the results of intradermal injections of 0.05 cc. of a 1:10,000 dilution of proteoses isolated from patients with eczema, urticaria and asthma, and from normal persons into other patients with eczema, urticaria and asthma. Proteoses 1, 3, 5, 7, 9, 10, 18, 19, 20, 21, 22 (fig. 2) were injected intradermally in patients 2, 3, 6, 8, 11, 14, 18 and 19.

Figure 3 shows the results of intradermal injections of 0.05 cc. of a 1:10,000 dilution of these same proteoses, this time injected into the skins of patients with supposedly nonallergic dermatoses consisting of eczematoid dermatitis, dermatitis herpetiformis, senile idiopathic pruritus, acne and psoriasis. Proteoses 1, 3, 5, 7, 9, 10, 18, 19, 20, 21, 22

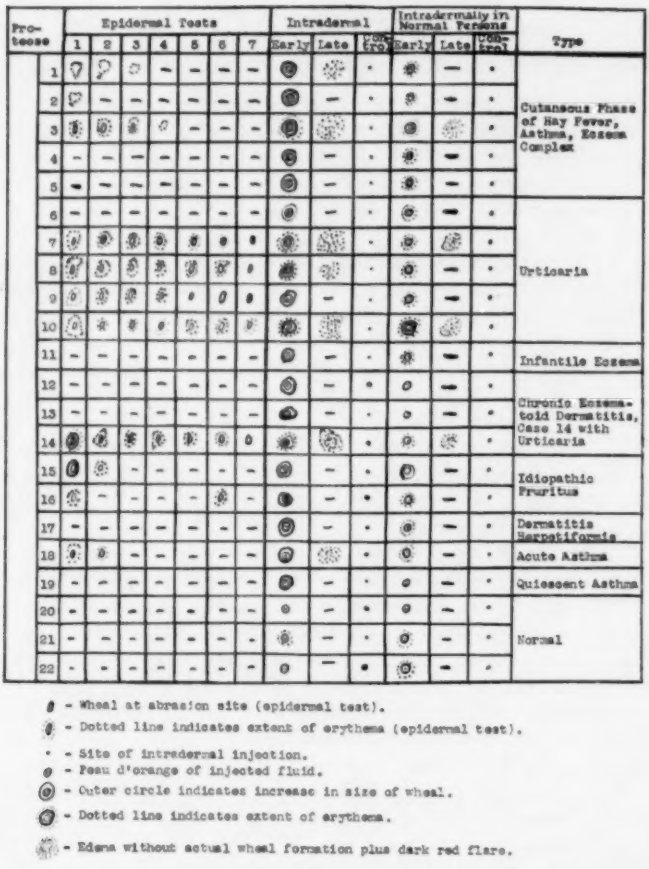

Fig. 1.—Epidermal and intradermal tests of patients with their own proteose, and intradermal tests in normal controls.

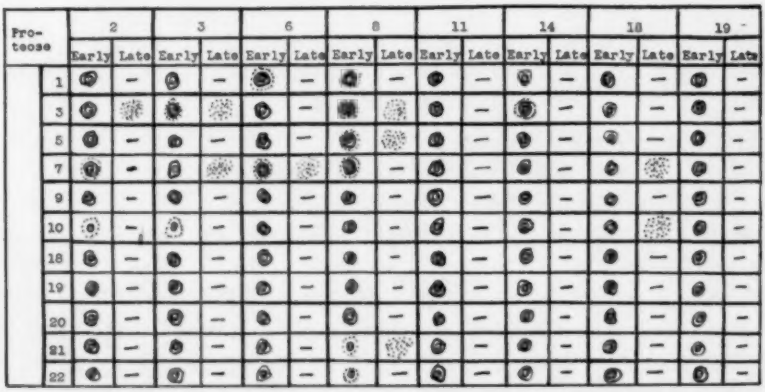

Fig. 2.—Results of intradermal injections of proteoses from allergic and three normal subjects into other allergic subjects.

(fig. 3) were injected intradermally into patients 12, 13, 16, 17, into a patient with acne and into one with psoriasis.

RESULTS

The following results are shown in figure 1:

1. Many of the patients did not react at all to epidermal scratch tests with their own proteoses.

2. The patients with urticaria showed a marked tendency to react to epidermal scratch tests. Three of the saline controls were positive, and the simple abrasion in one instance produced a positive reaction.

3. Practically every subject, with the exception of two normal persons, showed a positive early intradermal reaction.

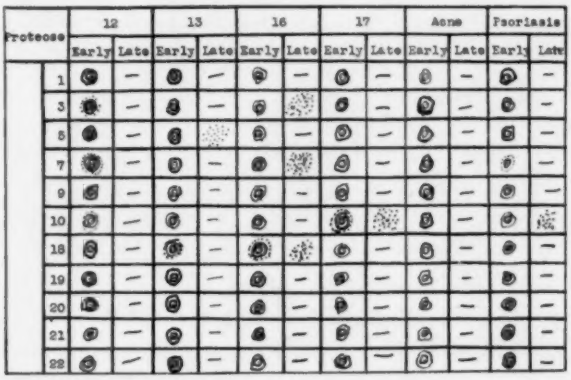

Fig. 3.—Results of intradermal injections of proteoses of allergic and normal subjects into patients with nonallergic dermatosis.

4. There were very few late intradermal reactions; these occurred in seven of the twenty-two persons tested. Here again patients with urticaria showed a marked tendency to react.

Most of the proteoses gave a positive, although slightly less accentuated, early intradermal reaction in normal persons. There were four positive, late intradermal reactions in the normal subjects.

Figure 2 shows:

1. Again practically every proteose used produced an early intradermal reaction in the various allergic persons tested.

2. Five of the proteoses produced positive, late reactions in five of the allergic subjects.

The following reactions are shown in figure 3:

1. Nearly all of the early intradermal reactions were positive.

2. Four of the proteoses produced positive, late intradermal reactions in four of the persons tested.

TREATMENT WITH PROTEOSE

Eight of the subjects (1, 2, 3, 7, 8, 10, 14 and 18) were treated with their own proteose. These persons were chosen because of the more marked tendency of their proteose to produce positive reactions. They were each given ten injections of their own urinary proteose, the minimal dosage being gradually increased, as determined by the preliminary epidermal scratch tests, to a maximum of 0.1 cc. of a 1 : 100 dilution. In those not reacting to the epidermal scratch tests, the initial dose was 0.05 cc. of a 1 : 10,000 dilution, which dose was gradually increased to 0.1 cc. of a 1 : 100 dilution. In none of the patients was there any appreciable improvement. In case 7, after five injections, the patient complained so much that the injections were discontinued, and treatment with calcium, hydrochloric acid, whole blood and soothing antipururitic lotions was given. Relief followed, with a complete amelioration in two weeks of the otherwise intractable symptoms. In case 3 there was a curious reaction. Two days after the second injection a flare-up of the lesions on the sides of the neck, antecubital and popliteal spaces occurred. This subsided in two days, and there was no subsequent change during the remaining eight injections. I do not know how to interpret this reaction.

SUMMARY

1. Urinary proteose is probably a complex but chemically impure protein substance.

2. While present in normal urine, it is increased in amounts in various allergic conditions. The average for the normal person is 25 mg. per hundred cubic centimeters of urine, and for the allergic, slightly over 100 mg. per hundred cubic centimeters of urine.

3. The uniformity with which early positive reactions occur with intradermal tests suggests that all urinary proteoses from all persons are local irritants.

4. About one-half of the supposedly allergic patients failed to give late or true intradermal reactions to their own urinary proteose, while many of the urinary proteoses gave true positive reactions when tried in other allergic patients, in nonallergic patients and even in normal persons, thus showing, I believe, a complete nonspecificity of the reaction.

5. The urinary proteose reaction as described by Barber and Oriel seems to be a phenomenon of local irritation, the degree of the reaction depending on the amount of proteose present and on the general sensitiveness of the skin in which it reacts, rather than on a specific allergic mechanism.

6. I was unable to obtain clinical improvement in any of eight patients treated by intradermal injections of their own urinary proteose.

DERMATOSIS PAPULOSA NIGRA (CASTELLANI) OF UNUSUAL DISTRIBUTION

(ACANTHOSIS PAPULOSA NIGRA)

F. A. DIASIO, M.D.
NEW YORK

Since Castellani's original communication,[1] cases have been reported by Castellani and Duval,[2] Michael and Seale[3] and myself.[4] Furthermore, many observers (Wise,[5] Fox,[6] MacKee[7] and others) have since recalled having seen similar cases previous to Castellani's report in 1925, which they, at that time, had diagnosed as flat warts, tiny nevi and a host of other clinical entities.

Castellani[2] noted that "numerous black or dark brownish papules, somewhat cupoliform or at times flattened, are seen on the face, principally on both malar regions; while they are usually rare or absent on the lower parts of the face and chin, a few may be present on the forehead." Michael and Seale[3] enlarged this clinical concept and established, as a result of their microscopic studies, the nosologic position by showing that the lesion is a nevus, characterized histologically by an irregular, noninflammatory acanthosis and structural disturbances of the pilosebaceous apparatus. They also brought out the fact that the condition is more common in Negro women than in men, that there apparently is a familial tendency and that it has an incidence of from 6 to 12 per cent.

A study of my cases[4] furnished additional evidence supporting the findings of Michael and Seale. The two full-blooded Negresses displayed the typical, nonitchy, discrete, black papules about the cheeks

---

From the service of D. D. Stetson, Department of Dermatology, Lincoln Hospital.

1. Castellani, A.: Observations on Some Diseases of Central America (Dermatosis Papulosa Nigra), J. Trop. Med. **28**:1 (Jan. 1) 1925.

2. Castellani, A., and Duval, C. W.: Dermatosis Papulosa Nigra, Arch. Dermat. & Syph. **18**:393 (Sept.) 1928.

3. Michael, J. C., and Seale, E. R.: Dermatosis Papulosa Nigra, Arch. Dermat. & Syph. **20**:629 (Nov.) 1929.

4. Diasio, F. A.: Dermatosis Papulosa Nigra, M. J. & Rec. **133**:77 (Jan. 21) 1931.

5. Wise, Fred, in discussion of Michael and Seale.[3]

6. Fox, H., in discussion of Michael and Seale.[3]

7. MacKee, G. M.: Lecture at the New York Post-Graduate Hospital and Medical School.

and temples. There was, however, no familial tendency. In the first case, a microscopic study revealed irregular acanthosis, slight hyperkeratosis of the lumens of the follicles with some degeneration of the follicular wall, and a moderate and limited inflammatory reaction beneath the acanthotic zones and about the follicles; no free pigment or nevus cells were found.

In agreeing with Michael and Seale that Castellani's dermatosis was a nevus, it was believed that the use of the term "nevus" to denote a developmental defect as indicated by the noninflammatory acanthosis, hyperkeratosis, follicular degeneration and cystic deformities of the pilosebaceous apparatus was justified. However, further histologic studies, including a study of one of the cases of unusual distribution which form the basis for this report, warrant the following conclusions:

1. No nevus cells were found in the sections examined.

2. In the thickened, acanthotic epidermis, the new or proliferating cells had all the characteristics of normal cells.

3. The acanthosis was irregular. It was not complicated by secondary changes due to infiltration with fluid or cellular elements from the cutis below.

4. The acanthotic zones varied as to their thickness: In a very young lesion they differed from normal epidermis in that the prickle cell layer had one or two additional rows of cells; in the fully developed papules there were ten or more rows of prickle cells massed together. The irregularity was more marked in the latter.

5. Since the acanthosis was primary in type, i. e., had none of the features noted in the inflammatory or neoplastic diseases so that the condition appears as such and is featured by acanthosis from the beginning, it belongs in the group of primary acanthoses with (*a*) psoriasis and the psoriasiform group; (*b*) lichen planus and the lichen planus group, and (*c*) acanthotic verrucous nevi.

6. In this connection dermatosis papulosa nigra has many points in common with the acanthotic nevi (acanthosis, hyperkeratosis, not as marked, and a mild inflammatory reaction).

7. The hyperkeratosis was slight in the young lesions and more marked in the older ones.

8. The follicular disturbances were dependent on the hyperkeratosis. Cystic alterations and follicular degeneration may thus be considered secondary changes.

9. The inflammatory reaction was mild and limited to the upper cutis. Its presence may be accounted for by the fact that the epidermic proliferation was setting up an irritation in the tissues.

10. Since the pathologic manifestations in the epidermis (acanthosis, hyperkeratosis and cystic dilatation of the follicles) lack the characteristics of inflammatory diseases, such as those of epidermatitis (eczema), or the features of a dermatitis (erythema multiforme), the usage of the descriptive term "dermatosis," as suggested by Castellani, has no pathologic basis. Likewise, the adjective "nigra" is misleading, for the color of the lesion is not due to an increase in the amount of pigment in the epidermis, as in acanthosis nigricans, but rather to the changes in the epidermis, as before enumerated.

The aspect of the body, as a rule, depends on the condition of the epidermis so far as its material state determines the extent to which light is permitted to enter the capillary zone.[8] In a state of health the rays emitted from the capillary region are sufficient to impart to the eye, when blended with the white and yellow rays of the surface, that complex of impressions one calls complexion. As already intimated, of the light which falls on the epidermis a part is immediately reflected unbroken as white light; another portion enters and is absorbed by the germinal layer; a third part passes through the epidermis into the capillary region and there suffers absorption of all its constituent rays, except a portion of the red and blue. The latter are then reflected from the capillary walls, emerge again from the epidermis and mix with the white light reflected from the surface.

If the epidermis deviates in the minutest degree from the normal, the properties of light suffer a corresponding change. The amount of light capable of being absorbed is proportional to the quantity of melanin formed. It follows, then, that the thicker the epidermis, the paler is its tint, as more white light is reflected from the surface to dilute the red rays emitted from the capillary region. And the greater the amount of pigment in the epidermis, the greater is the relative darkness or absence of light.

In the colored skin the pigment, which is normally confined to the basal cell zone, is increased in amount, and this is the only difference in the structure of the skin of the Negro. When it is also realized that in addition to the thickening of the epidermis (acanthosis and hyperkeratosis), the greater quantity of melanin present in the Negro skin and the light-filtering activity of the cells of the germinal layer, there is the added factor of the presence of fat in the epidermis, for Castellani's disease favors the seborrheal areas of the body, is it any wonder that the papules are dark brownish or black and that they stand out so prominently against a background shaded with darkness?

11. Pathologically, the designation acanthosis papulosa nigra would appear to indicate the microscopic changes present and would thus seem to be a preferable appellation for this condition.

---

8. Roberts, L.: Colour and Disease, Brit. J. Dermat. **19**:149 (May) 1907.

12. Since acanthosis papulosa nigra is a nevoid anomaly peculiar to the Negro race and, histologically, is not potentially dangerous, its importance to the patient and the dermatopathologist lies mainly in its differential diagnosis. Since it is a relatively common disorder among Negroes, it must be differentiated from moles, pigmented nevi, seborrheic and senile keratoses, verruca plana juvenilis and adenoma sebaceum before an accurate diagnosis can be made.

The following cases are reported in order to facilitate differentiation based on one additional factor—distribution.

REPORT OF CASES

CASE 1.—N. P., aged 33, born in Virginia, colored, a housewife, came to the clinic with the complaint of "pimples" of several months' duration and blotches of more recent onset. Her parents were both full-blooded Negroes. The face was greasy and dotted on both cheeks and about the chin by dark red papules, a few of which had already become pustular. Comedones were also present, though few in number. Scattered about the temples, the sides of the face, the neck and the seborrheal areas of the chest and back were many black, smooth, rounded, nonitchy, pinhead-sized papules. Large, dark brown macules showing fine pityriasic scaling, especially on scratching, covered both axillae and the interscapular region.

Scrapings from the pigmented spots revealed the presence of Microsporon furfur. The Wassermann test, urinalysis and other laboratory investigations gave negative results. On microscopic examination, a tiny papule excised from the interscapular space presented the early changes of Castellani's disease as previously described.

The acne vulgaris was treated accordingly, while the chromophytosis responded to parasiticidal therapy. No other treatment was instituted.

CASE 2.—C. H., aged 34, married, whose parents were full-blooded Negroes living in Virginia, where she was born, complained of infiltrated, scaly patches which had been present, on and off, for the past fifteen years.

Typical psoriatic plaques were noted along the spine and under both breasts. In addition, many tiny, cupoliform, shiny, black papules were seen on both temples, the sides of the face, the neck, the back and the chest, favoring the seborrheal regions.

The routine laboratory investigation did not reveal any abnormality. Permission for a biopsy was not granted. Under treatment the psoriatic lesions had gradually involuted.

CASE 3.—E. M., aged 25, a pupil in the Lincoln School for Nurses, was seen in consultation for a furunculosis limited to the back and the buttocks. In the course of my examination, I noted the typical lesions of acanthosis papulosa nigra distributed in the same fashion as in the other cases.

I have since had the opportunity to examine many other pupils of this training school, and have discovered three additional cases of this disorder with unusual distribution. I regret that I have not been able to reexamine my original cases in order to determine the presence or absence of lesions on other seborrheal areas besides those noted at the time of my initial investigation.

SUMMARY

1. Cases of Castellani's disease of unusual distribution are reported.

2. The widespread distribution of the eruption in the cases presented is of interest principally from the standpoint of differential diagnosis.

3. Whether this so-called unusual distribution may eventually turn out to be commonplace, I am not prepared to state, especially since I was not able to reexamine my original cases in the light of my present knowledge.

4. Since Castellani's caption for this disorder gives no clew to the nature of the papules and is also misleading, I have considered it best to use the title acanthosis papulosa nigra as the most suitable and logical one to describe this condition.

NOTE.—Since submitting this report, I have observed fifteen additional cases of acanthosis papulosa nigra, in twelve of which the eruption was as widespread as in the reported cases. I believe, therefore, that with the possible exception of early cases, the unusual distribution is a common feature of this nevoid condition.

19 East Ninety-Eighth Street.

SELF-STERILIZING POWERS OF THE SKIN

IV. EFFECT OF DRUGS AND HORMONES

THEODORE CORNBLEET, M.D.
CHICAGO

In a previous communication,[1] it was shown that the ingestion of carbohydrates had a pronounced effect on the activity of micro-organisms on the skin. Because of this it was felt that the exhibition of agents which alter the blood sugar content might help toward rationalizing the observed relation between carbohydrate ingestion and the self-sterilizing process of the skin. A number of such substances were used, and, for comparison, other agents which do not alter the level of the blood sugar were also tried.

METHOD

The principle of the previous methods for determining the inactivation of organisms remained the same. In order to do away with certain apparent objections one new procedure was inaugurated. Previously an area was swabbed with a thin emulsion of organisms. At intervals of ten minutes, succeeding fourths of this area were swabbed with a cotton applicator moistened with distilled water. Then the organisms clinging to the swab were transferred to plates of medium. There was some doubt as to how accurate this method could be, since there was no assurance except experience that the same percentage of organisms would leave the applicator and be successfully seeded on the plates. To this end, instead of attempting to remove the recoverable organisms from the skin with a swab, a glass cylinder with ground edges and about 1.5 cm. in diameter and about as high, was placed over one-fourth of the area of the skin previously seeded. Two cubic centimeters of distilled water were measured into the cylinder, and this was systematically stirred with a glass rod. One cubic centimeter was then pipetted off and transferred to a petri dish. The method for determining the percentage of inactivation of the organisms seeded on the skin remained otherwise the same as in previous studies in this series. Organisms were seeded every half hour for several hours. In some

From the Department of Dermatology, University of Illinois College of Medicine, service of Dr. F. E. Senear.

Supported by a grant from the Committee on Scientific Research of the American Medical Association.

1. Cornbleet, Theodore: Self-Sterilizing Power of the Skin: III. Carbohydrate Metabolism, Arch. Dermat. & Syph. **26**:463 (Sept.) 1932.

cases this was repeated on three successive days. Blood sugar determinations were made before and at half hourly intervals after the administration of the trial agent.

RESULTS

All agents whether given by mouth or parenterally showed the same general effect on the self-sterilization curve. This remained true whether their initial action was to raise or to lower the blood sugar content. The phases of the curve were of somewhat characteristic length for different substances; that is, the length of time the organisms remained hyperactive or restrained after the use of a certain drug varied with the one used. The extremes of the time interval were shown by atropine with a curve lasting two and one-half hours and thyroxine with a curve lasting two days. In all cases the organisms were more amenable to the skin's influence soon after the use of the agent as compared with the normal and then with the lapse of time less restrained by the skin. This was similar to the findings after ingestion of sugar. The degree to which the organisms were first active and then restrained also varied with the agent used. The list of substances used included epinephrine, ephedrine, pituitary, insulin, pilocarpine, physostigmine, theelin, thyroxine, liver extract, spleen extract, Köhler's extract of suprarenal cortex, atropine, caffeine, synephrin, morphine, amyl nitrite, peptone and water.

COMMENT

One may conceive of a mechanism at work here which is nicely balanced to accomplish its purpose of arresting the activities of microorganisms on the skin. Any drug or chemical, even water, introduced into the body has some action and therefore will result in at least minimal disequilibrating effects. A period now ensues in which many antagonistic forces seek a balance. In time this is obtained, and the mechanism that makes for cutaneous self-sterilization is again free to function at its average intensity. This would seem to be the case since any activity which a substance has will not make the curve vary in its gross aspects. Agents of opposite physiologic or pharmacologic action have similar effects on this curve. For example, drugs some of which have a sympathicotonic and some a vagotonic action give comparable results. Likewise, drugs or hormones some of which raise and some of which lower the blood sugar content, or which stimulate, accelerate or retard general bodily activity, do not change the curve.

Unless one can point to a specific action which is universal for so varied a number of agents as was tried and which is directly or indirectly responsible for the self-sterilization of the skin, it is difficult to imagine any other than a disequilibrating mechanism at work to give a similar

curve in all cases. It would follow, then, that whether a certain substance taken into the body economy actually had the effect of allowing organisms on the skin to remain active to such a degree and for such a length of time as to precipitate an infection depends on the facility with which physiologic equilibrium, or as Cannon calls it, "homeostasis," is obtained.

SUMMARY

Observations were made on the recoverability of micro-organisms seeded on the skin together with the curves of the blood sugar content following the use of a number of drugs, hormones and chemicals by mouth and parenterally.

CONCLUSIONS

The exhibition of agents of the most varied physiologic activity results in similar effects on the curve of the self-sterilization powers of the skin. Soon after the use of these substances, there is a period during which micro-organisms on the skin are more restrained, followed by another phase of comparative freedom.

RED CELL SEDIMENTATION TEST IN DERMATOLOGY

PRELIMINARY REPORT

LOUIS TULIPAN, M.D.
AND
WILLIAM DIRECTOR, M.D.
NEW YORK

In dermatology, as in other branches of medicine, it is often difficult to distinguish between similar diseases. Many of the laboratory procedures available at present do not offer diagnostic aid in such cases. We feel that the blood sedimentation test may give such aid in view of the general increase in the sedimentation rate in toxic, inflammatory and malignant conditions. It may be possible to differentiate such conditions as erythema multiforme bullosum, pemphigus and dermatitis herpetiformis. In dermatology, as in general medicine, the test should be used, not as a specific differential point in diagnosis, but as a general sign, which may differ in similar diseases or syndromes. The available literature on this subject in dermatology has been conflicting and unconvincing. For the most part, authors have reported on leprosy or syphilis. Studies in other diseases of the skin have been fragmentary and not sufficiently exhaustive. In addition, the tests were performed not from the point of view of differential diagnosis in diseases of the skin, but rather because positive tests had occurred in some of them.

The red cell sedimentation test has been in vogue since 1918, when Fahreus [1] reported it as a test for early diagnosis of pregnancy. Since then it has been applied to many fields of medicine. The increase in the sedimentation rate has been noted in acute and chronic infections, some toxic conditions, malignant conditions and, in general, in conditions in which there is destruction of body tissues. There is an increase in the rate during pregnancy and, to a slighter degree, at the menstrual period. The normal rate is slightly greater for women and children than for men, as well as for those at both age extremes. Concerning the mechanism of the red cell sedimentation, it is at present thought that the two chief factors influencing the rate of the fall are the concentrations of fibrinogen and serum globulin, with hydration or degree of anemia acting as subsidiary factors.[2]

From the Department of Dermatology and Syphilology, New York University and Bellevue Hospital Medical College, service of Dr. Howard Fox.

1. Fahreus, quoted by Tice, Frederick: System of Medicine, Hagerstown, Md., W. F. Prior Company, 1927, vol. 6, p. 795.

2. Snapper, I.: Lecture at Mount Sinai Hospital, New York, 1931.

METHOD

There are two general groups of sedimentation tests, each with many representatives. The methods following Linzenmeier's test measure the time of fall to an accepted level, while those following the Westergren [3] test measure the amount of fall in a given time. For our study the Westergren test was used. Pipets 2.5 mm. in diameter and about 300 mm. in length were graduated up to a 200 mm. mark. Sodium citrate (3.7 per cent solution) was drawn into a high grade 2 cc. syringe up to the 0.4 cc. mark and a 1 to 1½ inch no. 21 or 22 gage intravenous needle was attached. Blood was drawn by venipuncture up to the 2 cc. mark. The only air bubble present came from the air originally present in the needle. The blood was emptied into a small bottle with the needle attached, was mixed thoroughly, and was drawn up in the pipet to the 200 mm. mark. The pipets, with bottoms plugged, were set up in a stand, and a reading was taken at the end of an hour. All pipets and bottles were cleaned in hot soap suds, running water, alcohol and ether. The following are the readings (quoted from Westergren) for a one hour period: normal, from 1 to 3 mm. for men and from 4 to 7 mm. for women and children; borderline, from 4 to 7 mm. for men and from 8 to 11 mm. for women and children; slightly pathologic, from 8 to 11 mm. for men and from 12 to 15 mm. for women and children; strongly pathologic, above 30 to 35 mm.

RESULTS

The following are some of the findings of other authors. They are not exactly comparable, since no two observers use the same method. Daido [4] found the greatest increase of sedimentation rate in the secondary stage of syphilis, a high value in suppurative bubo, a normal one in a case of ulcus molle without bubo, a high value in leprosy and a slight increase in acute conditions of the skin. Aoki [5] reported the greatest increase in secondary syphilis, a slight increase in primary and latent syphilis, a slight increase in acute eczema, a marked increase in scabies, an increase in leprosy and an increase in generalized dermatitis. Mayr [6] found an increase in extensive soft chancre, a greater increase in mycosis fungoides and in a case of second degree burn of the face from the ultraviolet rays from the mercury vapor arc in quartz, an increase in extensive furunculosis, crural ulcer and diffuse psoriasis, and no sedimentation in eight cases of urticaria, pruritus and acne vulgaris. Pessôa and Ribeiro [7] found increased sedi-

3. Westergren, A.: The Technique of the Red Cell Sedimentation Reaction, Am. Rev. Tuberc. **14**:94 (July) 1926.

4. Daido, N.: Jap. J. Dermat. & Urol. **26**:74, 1926; abstr., Zentralbl. f. Haut- u. Geschlechtskr. **22**:633, 1927.

5. Aoki, M.: On the Sinking Velocity of Blood Cells in Different Dermatoses, Jap. J. Dermat. & Urol. **24**:14, 1924; abstr., Zentralbl. f. Haut- u. Geschlechtskr. **14**:178, 1924.

6. Mayr, J. K.: Die Sedimentierungsgeschwindigkeit der Blutkörperchen im Citralblut, Arch. f. Dermat. u. Syph. **134**:225, 1921.

7. Pessôa, S. B., and Ribeiro, B.: Notas sobre a sedimentacao dos erythrocytos e sobre a cholesteraemia no pemphigus foliaceous, Sciencia med. **7**:267, 1929.

mentation in six cases of pemphigus, although there was no correlation between the gravity of the disease and the amount of increase in sedimentation. Lutz,[8] in a review of the literature, points out that the sedimentation test has not been proved to have any value in the diagnosis of diseases of the skin. There is general agreement about the increase in secondary syphilis, lepra and tuberculosis. There were conflicting findings in acute cases of psoriasis, eczema and dermatitis. In zoster, alopecia areata and lupus erythematosus, the rate was found to be normal by some observers and decreased by others.

We have performed blood sedimentation tests on one hundred and fifteen patients with various dermatoses in the hope of discovering whether or not there were any differences between similar dermatoses sufficient to be used in differential diagnosis. We also desired especially to investigate pemphigus and erythema multiforme bullosum, as well as cases of Duhring's disease and conditions that simulated it. In order to do this, it was first necessary to study many conditions for the purpose of establishing standards for comparison.

No tests were performed on women just before, after or during the menses or during pregnancy. Tests were not performed on patients who gave a pertinent history or presented signs of any complicating disease.

Although Westergren called a sedimentation rate of 8 to 11 mm. in men and 12 to 15 mm. in women slightly pathologic, we considered only rates over 15 mm. as definitely pathologic and those between normal and the upper range (15 mm.) as borderline.

I. The following conditions gave normal values:

	Cases
Acne vulgaris	4
Psoriasis (including one arthropathic type)	6
Pityriasis rosea	5
Scabies	3
Urticaria	2
Sycosis vulgaris	2
Acne varioliformis	1
Molluscum contagiosum	1
Nodular tertiary syphilis	1
Infected verruca	1
Keratosis of lower lip	1
Alopecia areata	1
Alopecia universalis	1
Vitiligo	1
Morphea	1
Prurigo hiemalis	1
Pruritus (cause unknown)	1

8. Lutz, W.: Stoffwechsel und Haut, in Jadassohn, J.: Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1929, vol. 3, p. 225.

II. The following groups showed only one or two uncomplicated cases disagreeing with the majority:

Herpes zoster:
Normal—3 cases (6, 8, 9 mm. of sedimentation respectively)
Pathologic—1 case (20 mm.)
Lichen planus:
Normal—4 cases (8, 5, 3, 3 mm.)
Pathologic—2 cases (28 mm.) (50 mm.; had a toxic reaction from an injection of mercuric salicylarsenate)
Lupus erythematosus:
Normal—9 cases (9, 11, 4, 7, 11, 7, 1 mm.)
Pathologic—1 case (30 mm.; therapy with gold compounds two years)

III. The following groups showed varying results:

Epithelioma:
Normal—2 cases (3, 8 mm.)
Borderline—2 cases (13, 14 mm.)
Pathologic—2 cases (32 mm.; multiple epitheliomas) (22 mm.; on leukoplakic base, lip)
Erythroderma:
Normal—1 case (8 mm.; biopsy: psoriasis)
Borderline—1 case (14 mm.)
Pathologic—1 case (17 mm.)
Mycosis fungoides:
Normal—1 case (5 mm.; questionable case)
Borderline—1 case (12 mm.)
Pemphigus:
Normal—1 case (6 mm.; bullae on scrotum, penis)
Pathologic—2 cases (65, 60 mm.)
Hodgkins' disease:
Pathologic—1 case (55 mm.; cutaneous lesions)

IV. The following groups have been arranged for purposes of comparison and showed varying results:

Erythema multiforme—toxic erythema group:
Normal—4 cases (5, 7, 5, 8 mm.)
Pathologic—1 case (50 mm.; patient a woman, aged 70—gyrate iris lesions with infiltrated borders and bullae)
Erythema multiforme bullosum:
Normal—3 cases (7-10, 11, 8 mm.)
Phenolphthalein (erythema multiforme)
Pathologic—4 cases (50, 39, 20, 23 mm.)
Erythema nodosum:
Normal—1 case (9 mm.—3 weeks recovering)
Pathologic—2 cases (72, 74 mm.)
Erythema induratum:
Borderline—1 case (14 mm.)
Pathologic—6 cases (38, 55, 22, 30, 25, 30 mm.)

Lupus vulgaris:
Normal—1 case (6 mm.; twenty-five years' duration)
Pathologic—2 cases (32, 21 mm.)
Tuberculid—sarcoid group:
Normal—3 cases (3, 8, 3 mm.)
Borderline—1 case (14 mm.)
Pathologic—1 case (23 mm.)
Dermatitis herpetiformis:
Pathologic—4 cases (25, 25, 32, 17-20 mm.)
Generalized papulovesiculobullous group:
A. Dermatophytid group (fungi or trichophytin test, positive)
Normal—3 cases (3, 3, 7 mm.)
Borderline—1 case (11-9 mm.)
Pathologic—1 case (17-18 mm.)
B. Nondermatophytid group (fungi, trichophytin test, negative)
Normal—6 cases (4, 7, 5, 3, 4, 8 mm.)
Borderline—4 cases (15, 14, 15, 9 mm.)

In the dermatoses in group I, the sedimentation test yielded normal results, as was to be expected from present knowledge of the factors causing increase in sedimentation rate. The aforementioned conditions were localized and superficially inflammatory or infectious, or noninflammatory. In chronic or acute generalized psoriasis, the rate was normal, as it was in pityriasis rosea.

The three conditions in group II would have fallen into group I were it not for the single differing case in each instance. With the few cases of each disease so far studied, it was impossible to say whether or not the pathologic cases represented the exceptions that prove the rule. The lupus erythematosus group was interesting for its rather sharp contrast with the case of lupus vulgaris and erythema induratum. Although few cases of lupus vulgaris were studied, there seemed to be some ground for believing that the sedimentation rate might serve as a point in the differential diagnosis of lupus erythematosus and lupus vulgaris.

Of group III, little, unfortunately, could be said, since only a few patients were available for testing. In the epithelioma group results varied somewhat with the extent of the lesion, being normal or borderline in the simple case and higher in the multiple or complicated case. No conclusions could be drawn.

Three patients with pemphigus were tested. A normal reading was found in one case, that of a man who had had bullae on the penis and scrotum only, and who was free from active lesions at the time of testing. In two cases of pemphigus with active lesions there were greatly increased pathologic readings. These two cases and the six quoted from Pessôa and Ribeiro formed a group that contrasted sharply with the cases of erythema multiforme bullosum.

In group IV were placed for comparison cases of toxic erythema and erythema multiforme, including the bullous type as well as cases due to phenolphthalein. The rates in the latter eruptions were pathologic. The extent of the lesions ranged from a severe generalized bullous variety to a single violaceous macule in a girl 12 years old. This was remarkable in view of the usually mild nature of the disease, and also because in seven of the other eight cases of erythema multiforme the rates were normal. The exception was the case of a woman, aged 73, with a few bullae and widespread lesions of the iris type, some of which were markedly infiltrated and itchy. The question of some grave systemic disease was raised, such as the premycotic stage of mycosis fungoides.

Among ten cases of erythema induratum and lupus vulgaris, only one case of lupus vulgaris, of twenty-five years' duration, showed a normal sedimentation rate. There was a reading on the borderline in a case of erythema induratum. The general trend was toward an increased rate, which was in accord with the findings in pulmonary and other internal forms of tuberculosis. Only a few patients with tuberculids were tested, and most of these cases were not active, so that it was not possible to derive any definite information. In two cases of active erythema nodosum the sedimentation rate was greatly increased, while in one in the recovery phase it was normal. Unfortunately, these patients were not followed up for the purpose of noting whether or not clinical improvement was correlated with changes of sedimentation rate.

We made tests in four cases in which the condition was called dermatitis herpetiformis on the basis of the grouping of the lesions, pigmentation or scarring, or both, itching, chronicity and recurrence. In all four the readings were pathologic. There were fifteen cases in the group of generalized papulovesiculobullous eruptions that did not have the attributes of dermatitis herpetiformis.

On the basis of the presence of pathogenic fungi or a positive trichophytin test, or both, the lesions in five cases were diagnosed as dermatophytids; in these cases only one reading was mildly pathologic. In ten similar cases, in which the examination for fungus and the trichophytin test gave negative results, the readings were normal or borderline. Because of the vagueness of dermatitis herpetiformis and similar dermatoses, it was felt that the number of cases was too small to warrant any conclusions, but that continued study might possibly help to clarify, partially at least, the dermatologic morass known as Duhring's disease.

SUMMARY

The red cell sedimentation test was performed in one hundred and fifteen patients with conditions representing thirty-five diseases of the skin. The method of Westergren was employed.

The sedimentation rate was usually normal in lupus erythematosus and in erythema multiforme, including the bullous variety.

It was usually increased in tuberculosis of the skin.

It was invariably increased in erythema nodosum and markedly so in the eruption due to phenolphthalein.

It was increased in dermatitis herpetiformis, whereas in other generalized grouped vesicular dermatoses, including dermatophytids, it was normal.

The sedimentation rate in epithelioma varied from normal to a pathologic increase, depending on the extent of the lesion.

It was high in a case of Hodgkin's disease in which there were cutaneous lesions.

It gave borderline readings in mycosis fungoides and erythroderma.

Normal readings were obtained in some of the more common dermatoses.

On account of the increased rate in six cases of pemphigus reported by Pessôa and Ribeira and in two cases reported by us, the sedimentation test is suggested as a possible aid in differentiating pemphigus from erythema multiforme bullosum.

This is a preliminary report in which we have endeavored to point out the possible value of further studies.

CUTANEOUS NODULODISCOID TUBERCULOSIS OF ANERGIC TYPE

WITH DEVELOPMENT INTO ACTIVE (ALLERGIC) PULMONARY TUBERCULOSIS

STANLEY CRAWFORD, M.D.
PITTSBURGH

There are variability and multiformity in the cutaneous manifestations of tuberculosis as there are in syphilis, but to a lesser extent. Tuberculosis has different sites of inoculation about which little is known, but which may occur in the skin, tonsils and lymphatic structures, lungs, intestines, bones and joints.

The two cases embodied in this report are considered to be cutaneous tuberculosis of an anergic type related to the tuberculid or sarcoid group. They are of infrequent occurrence. The lesions of the skin are considered probably due to mutation or prebacillary granular, coccoid or filamentous forms in the life cycle of the tubercle bacillus. Whether these forms were developmental or degenerative could not be determined. Attenuated or inert tubercle bacilli of low virulence or toxins liberated by such organisms are also possible causes. The bovine type of this organism was suspected in these cases, though an avian species was searched for but was not found.

The lesions are discrete nodulogranulomatous plaques, devoid of pain or itching, which develop symmetrically over the entire cutaneous surface in association with marked hyperplasia of the tonsils and of the cervical, axillary, epitrochlear, inguinal, femoral and mediastinal lymph nodes. The cutaneous lesions are evidently secondary extensions either from the regional lymphatics by way of the reticular lymph channels of the skin or from deposits in the blood stream in the smaller arterioles and venules of the corium. Patients exhibiting these lesions often give a negative reaction to tuberculin because of the anergic stage of the infection, and ultimately active pulmonary or visceral tuberculosis and a positive allergic reaction to tuberculin develop.

Such cases have a suggestive comparison with the phases of syphilis: the primary or inoculation phase, the secondary or dissemination phase and the tertiary or organic disease phase.

CLINICAL SUMMARY

The two cases occurred in adult Negroes, as have the other cases which I have noted in the literature. The lesions of the skin were firm,

painless, nodular infiltrations from 0.5 to 2 cm. in diameter, either flat or slightly elevated and a dull reddish brown. Some lesions commenced as shotlike, subcutaneous nodules, especially about the face and neck, and were covered with normal skin in the early stages, but later, as the nodule involved the overlying structures, they assumed a dull inflammatory redness. Lesions appeared symmetrically over the face, eyelids, ears, neck, trunk and extremities, and rarely on the scalp, palms or soles. Some variation occurs in the clinical appearance of the lesions. The small nodular infiltrations may flatten and shrink to lichenoid papules, except that they are two or three times as large as the average papule of lichen planus and have a rounded rather than a polygonal outline, and may remain without altering their shape for weeks or months before involuting. The early nodular lesions may enlarge peripherally, as they generally do, into ovoid or rounded discoid infiltrations from 2 to 4 cm. in diameter. They are distinctly firm and slightly elevated and have a smooth or slightly scaly surface which may later develop a warty or papillomatous character. Some of the discoid infiltrations tend to break down, superficially and centrally, into small erosive areas with shallow crusts.

On the neck and trunk there was a distinct tendency to symmetrical arrangement in the lines of cleavage of the skin much like that of the lesions of pityriasis rosea. This was probably due to depositions of rests along the cutaneous lymphatics or blood vessels. On the face, neck, buttocks and anterior and posterior surfaces of the extremities the lesions appeared discrete but indiscriminately scattered. Enlarging and partially breaking down plaques often fused one with another, producing moist, eroded or crusted, granulomatous infiltrations from 5 to 10 cm. in diameter. This is more likely to occur on the neck and buttocks, but may occur on the trunk and the shoulders.

The lesions on the face (forehead, eyelids, cheeks and chin) were more superficial, drier and slightly verrucous and were often covered with a grayish powdery scale. Those on the neck, shoulders, trunk and extremities were larger, deeper, firmer and more elevated, and though usually smooth or slightly scaly they showed a greater tendency to surface necrobiosis or secondary pyogenic invasion. After several months the lesions involuted and disappeared, leaving thin, slightly depressed scars with more or less depigmentation.

Either concomitantly with the development of the lesions of the skin or shortly after their onset, there was a marked enlargement of the lymph nodes of the cervical, axillary, epitrochlear, inguinal and femoral regions. These nodes were firm, painless, rounded, marble-sized or larger hyperplasias of individual nodes which fused into masses the size of an orange or larger. They did not break down and sup-

purate as do scrofulous glands, and when excised they were soon replaced by other enlarging nodes. This nodal enlargement subsided and recurred periodically. Firm infiltrations were found along the lymphatic vessels of the arms and legs; these also subsided and recurred periodically.

A painful polyarthritis, with swelling, tenderness and local warmth and redness in the acute stages, developed at varying intervals in the joints of the hands and feet and the large joints of the extremities which persisted several weeks. Fusiform enlargements often developed along the lateral surfaces of the fingers (dactylitis), and at times the tendons exhibited tender infiltrations (tenosynovitis). These symptoms alternately subsided and recurred at varying intervals.

The temperature varied from normal, slightly above or below, in the morning to 99 or 101 F. in the afternoon. During the period of observation of these two cases, there was no evidence of pulmonary tuberculosis, but it will be noted that the patient in case 1 died of "consumption" one year later. Both patients had bronchitis periodically, and the one in case 2 had a slightly productive cough and huskiness of the voice at times which were due to subacute, possibly tuberculous involvement of the vocal cords. At no time were tubercle bacilli found in the sputum, lesions of the skin or glands.

Microscopic examination of the cutaneous lesions showed distinct groups of epithelioid tubercles, but without central necrosis or a peripheral lymphocytic zone. In later stages, the epithelioid tubercles showed some central necrosis with typical Langhan's giant cells, but the peripheral lymphoid zone was still absent or poorly developed. Acid-fast granules were encountered in the tubercle formation or in the giant cells. Microscopic examination of the lymph nodes revealed numerous rounded masses of epithelioid cells with an occasional Langhans giant cell, and some of the cell masses exhibited necrobiotic changes without definite caseation. The connective tissue reticulum usually showed extensive hyaline degeneration.

Many cultures of the hyperplasias of the lymph nodes showed acid-fast granules and variously shaped filamentous forms which were considered mutations of the tubercle bacillus. These mutation forms were repeatedly grown in subcultures.

REPORT OF CASES

CASE 1.—A. E., a colored man, aged 28, presented lesions of one year's duration on the posterior surface of the neck and shoulders, the lower posterior regions of the back and buttocks, the outer surfaces of the arms and forearms and the anterior and lateral surfaces of the legs. They commenced as firm, pea-sized, intracutaneous and subcutaneous, nodular infiltrations of a brownish-red color, and gradually enlarged peripherally. Those on the forearms attained a diameter of about 1 cm.,

were rounded, and, though at first smooth or slightly scaly, later broke down superficially with a slightly purulent exudation. These lesions healed by involution after several months, leaving soft, thin, slightly depigmented scars. Periodically, new lesions of the same type appeared on the forearms and went through the same course. The lesions on the back of the neck were similarly firm, painless, dull red infiltrations which showed less tendency to surface necrosis. They had a moderately verrucous or scaly character, with only a slight tendency to surface necrosis in some lesions. Symmetrically situated over the lower sides of the back and buttocks and the anterior surfaces of the legs were round or ovoid granulomatous infiltrations measuring from 1 to 3 cm. in diameter, with a tendency to coalesce into larger and irregular plaques. These lesions showed a distinct tendency to surface necrosis and were often crusted; removal of the crusts revealed a moist, dull red, eroded, slightly depressed surface. With the surrounding broad, smooth or verrucous wall of the noneroded portion of the infiltration a scalloped appearance was given to these lesions. They persisted several weeks or months and finally involuted, leaving soft, slightly depressed, depigmented scars.

The lymph nodes in the posterior cervical, axillary, epitrochlear and inguinal regions were enlarged and rounded like variously sized marbles. They remained discrete and showed no tendency to break down. The lungs exhibited fine crepitant râles and increased whispered voice sounds in the upper right lobe to the level of the third rib and showed an increased density in this area suggestive of moderate tuberculous infiltration. There was no cough, expectoration or pain in the chest, but the patient had an occasional night sweat. The heart sounds were normal. The liver was enlarged and palpable 2 inches (5 cm.) below the costal margin. The spleen was slightly enlarged. The patient frequently complained of marked abdominal distention; the abdomen became "hard and tight," and this condition was accompanied by cramplike, sometimes dull pains in the lower part of the abdomen which radiated to the lower right quadrant. These abdominal pains sometimes followed meals, lasted about five minutes and were relieved by belching, soda or hot compresses. There was no nausea or vomiting. The stools were regular and normal. The eyes, ears, nose and mouth were normal. Reflexes were normal. There was no history of venereal disease, and the Wassermann reaction of the blood was negative. X-ray pictures of the bones and joints revealed nothing abnormal. The temperature averaged 99 F.; the pulse rate, 100, and the respiratory rate, 21 per minute. The urine was normal except for a few leukocytes.

The erythrocytes varied from 3,125,000 to 4,840,000; the hemoglobin was 85 per cent; the leukocytes varied from 7,200 to 11,400; the polymorphonuclears were 85 per cent; the small lymphocytes, 4 per cent, the large lymphocytes, 9 per cent; the transitionals, 1 per cent, and the basophils, 1 per cent. Tissue was excised from the cutaneous lesions and injected intraperitoneally and intra-inguinally into guinea-pigs which failed to show tuberculosis when killed two months later.

Microscopic examination of the lesions on the skin showed thinning of the epidermis and numerous epithelioid cell masses in the corium suggestive of tubercles, with several typical Langhans' giant cells and new fibroblastic cells. Giant cells were often noted in the subcutaneous tissues, and even here there was a prominently suggestive tubercle formation. Round cell infiltration was scant or absent. Hyaline degeneration of the connective tissue reticulum was present, and the elastic tissue in the upper corium showed complete fragmentation and destruction. The patient disappeared from view, but one year later was said to have died of pulmonary tuberculosis in a hospital in Georgia.

Case 2.—In A. B., a colored man, aged 22, a small, firm, painless, shotlike, subcutaneous nodule had developed on the back of the neck two years previously.

This nodule gradually involved the overlying skin and then broke down centrally, discharging a small amount of pus. Soon other shotty nodules, which could be rolled about under the fingers, developed in the subcutaneous tissue of the posterior region of the neck. After four weeks these also broke down centrally and discharged a small amount of yellowish pus. After six or seven months similar nodules developed in other areas of the skin and gradually involved the overlying epidermis, so that two years after the onset there was a symmetrical eruption of flat, discoid infiltrations, some with a slightly pustular surface, probably from secondary infection, and others with dark grayish crusts. These lesions were distinct infiltrations from 1 to 2 cm. in diameter, of oval or rounded contour, a dusky red or brownish color and painless. They had been present about eighteen months. The upper and lower eyelids showed superficial, ovoid, dry, granular plaques with a grayish powdery scale. The back of the neck showed small, firm, irregularly grouped papules which under diascopic pressure had a brownish-yellow tint. The sides of the trunk presented a few ovoid granulomatous infiltrations which tended to be arranged in the lines of cleavage of the skin. The buttocks showed rounded plaque-like infiltrations, many of which, by peripheral enlargement, tended to coalesce one with another into larger lesions with an irregular outline. Secondary pyogenic invasion gave them a moist, eroded-looking, slightly pustular surface. The arms and legs showed many irregularly scattered granulomatous infiltrations.

The patient complained of some shortness of breath and noticed a tight pulling sensation in the right side of his chest. Auscultation revealed occasional coarse râles at the apexes of the lungs, but no evidence of tuberculosis. This was confirmed by roentgen examination. A slight huskiness of the voice was found to be due to slightly inflamed and edematous vocal cords which were regarded as tuberculous. A limited flexion of the right elbow joint developed, which showed some enlargement and occasionally tenderness and warmth. The metacarpophalangeal and the phalangeal joints were swollen for several months, but the swelling finally subsided. Tuberculous polyarthritis was regarded as the cause of the enlargements of the joints. X-ray pictures of the joints and bones failed to reveal any abnormality. The patient had no night sweats, but considerable axillary sweating was noticed during the day. He complained of vertigo severeal times weekly. An area of anesthesia was found on the ulnar side of the right forearm below the elbow. There was a constant watery discharge from the left eye without evidence of inflammation. The abdomen was soft and flat and showed no areas of tenderness or palpable masses. He had had gonorrhea three years previously. There was a hard, painless, nodular infiltration of the left testis, which was probably of tuberculous origin. There was no history or evidence of syphilis either clinically or serologically.

The urine occasionally showed a faint trace of albumin and a few leukocytes. The erythrocytes numbered 4,600,000; the hemoglobin was 90 per cent; the leukocytes numbered 8,800; the polymorphonuclears were 64 per cent; the small lymphocytes, 30 per cent; the large lymphocytes, 4 per cent, and the transitionals, 2 per cent. The Wassermann reactions of the blood and spinal fluid were negative. A throat culture showed hemolytic streptococci, a few Streptococci viridantes and Micrococci catarrhales. Repeated examinations of the sputum failed to reveal tubercle bacilli.

The posterior cervical lymph nodes were enlarged to the size of a large pea, the axillary and epitrochlear nodes were enlarged and rounded like marbles, and the inguinal and femoral glands were enlarged to the size of a nut and were fused into firm, irregular masses the size of a small orange. Epitrochlear and femoral glands

were removed surgically on several occasions for study, but were replaced in a few weeks by other glands just as large.

Histologically, the epitrochlear glands were almost completely occupied by more or less rounded nodes composed of epithelioid cells with an occasional Langhans cell. Necrobiotic changes were seen in the center of some of the nodes, but definite caseation was not encountered. The reticulum of the lymphoid nodes was the seat of extensive hyaline degeneration. Although the presence of "epithelioid tubercles" with Langhans' giant cells made a diagnosis of a hyperplastic tuber-

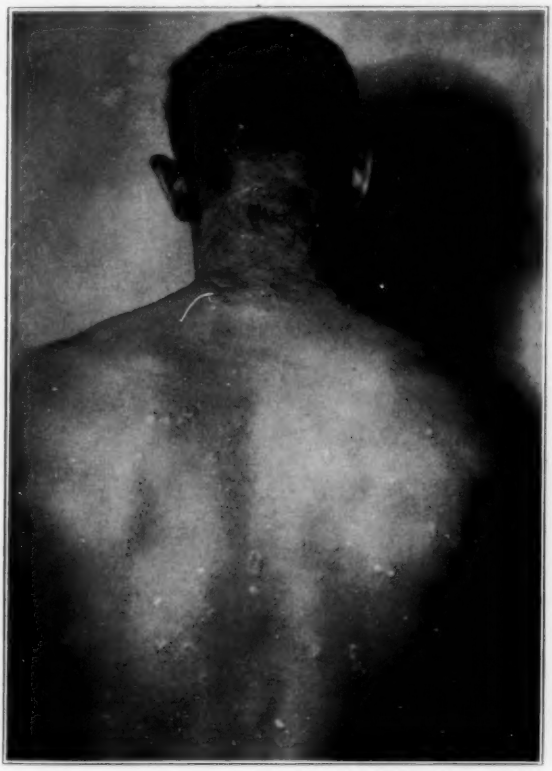

Fig. 1 (case 2).—Soft, thin, slightly depigmented scarring on the posterior surface of the neck following the involution of confluent nodular and plaquelike lesions. The back shows discrete nodules and plaques somewhat symmetrically distributed in the lines of cleavage of the skin.

culous lymphadenitis probable, the specific nature of the process could not be reached on a morphologic basis so long as the characteristic central caseation was not found.

Microscopic examination of the tonsils revealed subepithelial edema and small cellular chronic inflammatory infiltration of the stroma. Several crypts or retention cysts were seen, in the immediate vicinity of which were several distinct epithelioid tubercles containing Langhans' giant cells but not showing central caseation. The diagnosis was tuberculosis of the tonsils.

Histologically, sections of the cutaneous lesions on the neck and buttock showed several groups of epithelioid tubercles with giant cells and central necrosis. The lymphoid zone of the tubercles was poorly developed or absent in most instances.

Of several cultures from an epitrochlear gland, but one showed a growth which contained an anaerobic coccus that was acid-fast in the early cultures and an aerobic diphtheroid organism the granules of which were acid-fast in early cultures. Of many cultures from the inguinal lymph nodes, but few showed

Fig. 2 (case 2).—Discrete and coalesced nodular and discoid lesions over the buttocks.

growth. In four cultures staphylococci developed; in one, a diphtheroid organism, and in another, two types of diphtheroids, one of which had acid-fast granules. Cultures from the inguinal nodes frequently showed acid-fast granules and coccoid forms in the early stages, and subcultures showed bizarre and variously shaped fungoid forms which were considered to be mutation phases of tubercle bacilli. No Sporotrichum was grown in two cultures on Sabouraud's medium.

Dr. Ralph R. Mellon gave the following report of the bacteriologic findings: "Sections of the lymph glands fixed in Zenker's and stained in carbol fuchsin showed rather numerous acid-fast organisms in certain portions. They were by no means of the usual morphology, but showed a most remarkable pleomorphism.

They varied from enlarged clubs resembling the diphtheria bacillus to coccoidal forms of 2 or 3 microns in diameter. Rather numerous dumb-bell shapes were also found, the terminals being connected by a most delicate acid-fast filament. The coccoidal forms frequently contained intracellular achromatic-staining areas resembling somewhat an endospore, although the demarcation was not so clear as to make such an interpretation finally possible. All attempts to culture this organism failed, and all the important mediums and methods for cultivation of the tubercle organism were employed. There was isolated, however, with some difficulty a sparsely growing, barred type of diphtheroid organism, which in the early cultures contained numerous acid-fast granules. This was present in some of the glands to exclusion, but in others it was associated with a large micrococcus which at first preferred anaerobic conditions but after numerous subcultures finally grew aerobically. Inasmuch as our recent experiments [1] on pure cultures of the tubercle bacillus have shown that it is possible to have this type of growth originate from the filtrable nonacid-fast gonidial granules, the so-called granules of Much, it seems rather probable that the constancy of isolation of these organisms from different glands of the body may be correlated with the experimental facts. All attempts at animal inoculation of the glandular material were negative. Rabbits, guinea-pigs, chickens and monkeys were employed. Serial inoculations of the glands from pig to pig also failed to yield positive results. Life cycle studies, such as those referred to,[1] now make it clear that in certain instances it will be necessary to resort to newer methods that take into consideration the dormancy of certain stages of the tubercle bacillus, if successful isolations are to be made. Of course the possibility exists that this organism was not one of the true tubercle group, yet the strictly epithelioid type of tubercle produced is entirely consistent with its true tuberculous nature and was so diagnosed not only in this laboratory but by other competent pathologists to whom the sections were submitted. Moreover, recent researches are making it clear that various forms of atypical tuberculosis, so-called, are to be correlated with different degrees of virulence and correlated characters present in experimentally derived variants and cyclostages of this organism."

NOTE.—When seen two and one-half years after hospitalization, the patient appeared to be in good general health. The once active lesions of the skin were flat, smooth scars, some of them showing partial depigmentation. Only small soft glands were slightly palpable in the cervical, axillary and inguinal regions. No thoracic or abdominal complaints were elicited. Roentgenologic examination of the chest did not reveal evidence of tuberculosis, and that of his hand showed no evidence of bone changes. The movement of the left vocal cord was retarded, and the membrane over both arytenoids was infiltrated. The reaction to tuberculin was negative. It may be deduced hypothetically that the original lesions of the skin were allergic or immunologic reactions against the granule or attenuated tubercle infection, and that treatment has succeeded thus far in preventing the progressive development of the organism and subsequent visceral involvement.

OTHER CASES

Schaumann [2] described a lymphadenic condition due to the tubercle bacillus probably of the bovine type, which involved the tonsils, the

1. Mellon, R. R., and Fisher, L. W.: New Studies on the Filtrability of Pure Cultures of the Tubercle Group of Micro-Organisms, J. Infect. Dis. **51**:117 (July-Aug.) 1932.

2. Schaumann, J.: Benign Lymphogranulomata and Its Cutaneous Manifestations, Brit. J. Dermat. **36**:515 (Dec.) 1924.

bronchial and mediastinal glands and the regional lymph nodes, frequently associated with enlargement of the liver and spleen and secondary lymphogranulomatous nodules and tumors in the skin, especially over the cheeks, ears, nose, outer surfaces of the extremities and on the hands. Microscopically, the cutaneous lesions suggested nodular or diffuse infiltrations of the Boeck sarcoid type, and those on the fingers and hands, lupus pernio. The fingers frequently showed fusiform swellings, and the phalanges at times exhibited cystlike erosions at the periphery of the bone cortex, and sometimes a diffuse myelitis of the medulla not revealable with the x-rays. During the active process of involvement of the lymph structures, the lungs did not show any evidence of tuberculosis, but in later stages typical tuberculous infiltrations were found. The cutaneous reactions to tuberculin were negative in the prepulmonary tuberculous stage, and animal inoculation with tissues from the lymph nodes failed to produce the tubercle bacillus. Microscopically, the cutaneous lesions showed epithelioid tubercles, with scarcely any peripheral lymphocytic infiltration, separated from each other by connective tissue. Central necrobiosis in the tubercles was of rare occurrence.

There is much to support the belief that the two cases described in this report are of the same nature as those described by Schaumann. The lesions of the skin were probably secondary to a primary invasion of the lymphadenic structures with tubercle bacilli or a mutation form of this organism.

The following ten cases taken from the literature were in adult Negroes, with the exception of one, which was in a Chinaman.

Klauder [3] reported a case showing enlarged lymph nodes and generalized granulomatous nodular infiltrations of the skin, arranged on the trunk like the lesions of pityriasis rosea, which failed to reveal evidence of pulmonary tuberculosis at the time of the report, but which at autopsy [4] showed caseous tuberculosis of the lungs and mesenteric nodes and a tuberculous enteritis, which was considered the primary focus of infection. Dactylitis with cortical erosion of the phalanx was present. The reaction to tuberculin and inoculations into guinea-pig were negative. Many of the cutaneous lesions showed some surface erosion and were followed by soft, thin scarring. Gage [5] and Gins-

3. Klauder, J. V.: Multiple Sarcoid-Like Granulomas of the Skin of Undetermined Nature, Arch. Dermat. & Syph. **12**:171 (Aug.) 1925

4. Klauder, J. V.: Multiple Sarcoid-Like Granulomas of the Skin of Undetermined Origin: Supplementary Note, Arch. Dermat. & Syph. **13**:675 (May) 1926.

5. Gage, A. J.: Tuberculosis Cutis or Sarcoid? Arch. Dermat. & Syph. **19**: 996 (June) 1929.

burg [6] each presented a case before the Atlantic Dermatological Conference which were probably of the same variety of cutaneous tuberculosis. The lungs showed no evidence of tuberculosis, and the reactions to tuberculin were negative, although Gage's case presented a typical tuberculous histology in association with enlarged regional lymph nodes. Traub [7] showed a case before the New York Dermatological Society of seven years' duration and similar clinical symptomatology, with thickening of the right interlobular pleura but without evidence of pulmonary tuberculosis. Wolfe [8] presented a case before the Philadelphia Dermatological Society suggestive of this type of tuberculosis in association with lupus pernio of the hand and lupoid lesions on the face, but the lesions on the arms were more of the papulonecrotic type. MacKee [9] showed a case before the New York Dermatological Society in a Chinaman with pulmonary tuberculosis; the cutaneous lesions were confined to the left thigh and leg as pea-sized, firm, dark brown, papular infiltrations which disappeared and recurred periodically over a period of four years, showing no necrosis and disappearing eventually with or without scarring. The involved leg showed recurrent lymphangitic enlargement.

Combes [10] exhibited a case before the New York Dermatological Society with generalized discrete and coalesced lesions that were intensely itchy in the early stages. There was no associated adenopathy, and the reaction to tuberculin was negative. Rauschkolb [11] showed two cases before the American Dermatological Association, in Cleveland, with marked adenopathy and strongly positive reactions to tuberculin. The bones did not reveal any changes with the x-rays. Shaw [12] presented a case before the Dermatological Conference of the Mississippi Valley with lesions of the skin corresponding to this type of cutaneous tuberculosis, which disappeared during an exfoliative dermatitis resulting from treatment with arsphenamine for a positive Wassermann reaction of the blood, but which reappeared when the exfoliative

6. Ginsburg, L.: Tuberculosis Cutis, Arch. Dermat. & Syph. **19**:995 (June) 1929.

7. Traub, E. F.: Tuberculosis Cutis, Arch. Dermat. & Syph. **19**:137 (Jan.) 1929.

8. Wolfe: Tuberculosis of the Skin, Arch. Dermat. & Syph. **20**:248 (Aug.) 1929.

9. MacKee, G. M.: A Case for Diagnosis: Recurrent Papular Eruption, Arch. Dermat. & Syph. **14**:229 (Aug.) 1926.

10. Combes, F. C.: Sarcoid (Disseminate Type), Arch. Dermat. & Syph. **23**:991 (May) 1931.

11. Rauschkolb, J. E.: Tuberculosis of the Skin, Arch. Dermat. & Syph. **23**:155 (Jan.) 1931.

12. Shaw, H. C.: A Case for Diagnosis (Tuberculosis of the Skin? Sarcoid?), Arch. Dermat. & Syph. **23**:1159 (June) 1931.

dermatitis subsided. The presence of adenopathy or the reaction of tuberculin was not recorded.

DIFFERENTIAL DIAGNOSIS

Scrofuloderma gummosa (tuberculosis colliquativa) is a cutaneous nodular tuberculosis which softens and forms ulcers or fistulous tracts and which occurs most frequently in children. The lesions in the skin either result from the direct, exogenous implantation of tubercle bacilli, which is rare, or occur as indirect, endogenous, secondary manifestations of a glandular, pulmonary or osseous focus of tuberculosis, the usual source. Tubercle bacilli can be demonstrated as a rule, though usually with difficulty.

Sporotrichosis may resemble the superficial, grayish, verrucous areas about the face or the nodular lesions on the extremities, but ulcerating nodules of acute onset arranged along the lymphatics and the finding of Sporotrichum culturally afford readily diagnostic signs.

Syphilis is the disease most frequently thought of in the differential diagnosis. Syphilitic gumma has a brownish-red color and a firmer infiltration, and tends to break down into steep punched-out ulcers. The discoid, papular syphilids are usually scaly, flat, brownish-red infiltrations, more marked on the flexor than on the extensor surfaces, and they often involute centrally, forming waxy, brownish, annular lesions. The syphilitic plaques of Bazin are sharply round or oval superficial infiltrations with a superficial desquamation, a slightly depressed center and a brownish-red periphery, which may be hypertrophic or else ulcerative when on moist surfaces. Microscopic examination readily differentiates this condition from tuberculosis.

Nodular tuberculosis of the hypoderm (Wende) is a subcutaneous formation of typical tubercles, showing tubercle bacilli, which develop in the region of the small blood vessels. The overlying skin is of normal appearance. The process never ulcerates and disappears after a few months, leaving atrophic scars. It is similar to erythema induratum except for the absence of an inflammatory reaction.

COMMENT

These cases probably represent a type of primary tuberculous lymphadenitis. The inoculation probably occurred in the tonsillar or similar tissue, and after invading the general lymphatic system produced secondary lesions in the skin by way of the cutaneous lymphatics. The small subcutaneous nodules represented lymphocytic infiltration about a cutaneous lymph channel harboring the infective rest. A tuberculoid structure resulted in the corium producing the granulomatous lesion of the skin.

Repeated examination of the lymph nodes and skin failed to reveal typical tubercle bacilli by smear, culture or animal inoculation, but acid-fast granules or cocci and variously shaped fungoid forms were found which probably represented mutation phases in the life cycle of the tubercle bacillus. This leads to the view that a nonbacillary phase of the tubercle bacillus is the factor inducing this human lymphadenitic form of cutaneous tuberculosis. This may account for the failure to find bacillary forms in the glands and skin, and may explain the repeatedly negative tuberculin reactions. In the later stages of the disease the lungs may show active bacillary tuberculous infiltration with bacilli demonstrable in the sputum and in cultures from tissues from the lungs. In cases with pulmonary involvement the reaction to tuberculin is found to be positive. McCarthy [13] suggested that the negative reaction to tuberculin may be due to the small number of tubercle bacilli in the cutaneous lesions. It is probable that the patient who is not sensitized to the tubercle bacillus proper will not react to small antigenic doses of tuberculin. In advanced cases the patients may be so overwhelmed by tubercle toxins that they are unable to react to small local doses of tuberculin. This failure to react to tuberculin is probably due to the anergic phase of tuberculosis, when the organism is in a nonbacillary stage of its life cycle. As tuberculin is the product of the bacillary form of the tubercle bacillus, it may not induce allergic reactions until the development of the bacillary stage in the tissues of the host.

SUMMARY

1. Two cases of probable anergic tuberculosis of the skin are presented, one of which passed into the allergic phase, and fatal pulmonary tuberculosis developed.

2. The lesions of the skin probably represented secondary manifestations due to the dissemination of mutation forms of the tubercle bacillus by lymph channels.

3. The reaction to tuberculin was negative during the stage of dissemination and cutaneous reaction to the mutable forms of the tubercle bacillus.

4. Marked adenopathy without necrosis occurred in association with the cutaneous lesions.

5. Pulmonary tuberculosis is the final stage of this type of cutaneous tuberculosis and is probably due to the recurrence of bacillary forms of the tubercle bacillus.

6. The reaction to tuberculin is positive in the latter or bacillary stages, when the patient has become allergic to it.

1202 Westinghouse Building.

13. McCarthy, in discussion on Gage.[5]

LYMPHOGRANULOMA INGUINALE (DURAND-NICOLAS-FAVRE DISEASE)

PRELIMINARY REPORT OF THREE CASES IN OMAHA

CHARLES C. TOMLINSON, M.D.
AND
OLIN J. CAMERON, M.D.
OMAHA

The fourth venereal disease, most often spoken of as lymphogranuloma inguinale, or Durand-Nicolas-Favre disease, has been recognized as a definite clinical entity in Europe since 1913.

Under the caption "Nontuberculous Granulomatous Lymphadenitis," Hansmann,[1] in 1924, reported the first probable cases of this disease recognized in this country, from the Peter Bent Brigham Hospital. Two of the patients were men and two women.

In 1926, Pardo-Costello [2] reported three cases in Cuba, all in men.

Hillsman, Wilshusen and Zimmerman [3] encountered this disease in a white man, aged 73, who had been sexually exposed to a Negress supposed to be "diseased"; this case occurred in New Haven, Conn.

In New York, a probable case, in a Negro, aged 27, was reported by Gross [4] in May, 1930. Wise [5] had a patient, a man, aged 21, in whom lymphogranuloma inguinale was proved to be present by Sulzberger, by means of the Frei test. Another case was presented by Cannon,[6] in October, 1931. From a study of the records of the discussions at medical meetings in New York, one gathers that this disease is encountered there frequently.

In Cleveland, Cole, Driver, De Wolf and Van Cleve have apparently seen more cases of this disease than any other observers in America. Their work and the report of fifty-eight cases by De Wolf

---

Studies and Contributions of the Department of Dermatology and Syphilology of the University of Nebraska College of Medicine.

1. Hansmann, G.: Surg., Gynec. & Obst. **39**:92, 1924.

2. Pardo-Costello, V.: Lymphogranulomatosis, Arch. Dermat. & Syph. **14**: 35 (July) 1926.

3. Hillsman, J. A.; Wilshusen, H. F., and Zimmerman, H. M.: Lymphogranulomatosis Inguinalis, Arch. Dermat. & Syph. **18**:383 (Sept.) 1928.

4. Gross, P.: Lymphogranulomatosis Inguinalis (Nicolas-Favre), Arch. Dermat. & Syph. **21**:876 (May) 1930.

5. Wise, Fred: Lymphogranulomatosis Inguinalis, Arch. Dermat. & Syph. **24**:147 (July) 1931.

6. Cannon, A. Benson: Lymphogranuloma Inguinale, Arch. Dermat. & Syph. **24**:679 (Oct.) 1931.

and Van Cleve [7] stimulated us to be on the look-out for cases in Omaha. Since making this report of fifty-eight cases in Cleveland, De Wolf and Van Cleve [8] have encountered eighteen more cases, making a total of seventy-six. One of the latter eighteen patients presented the ano-rectal syndrome described by Frei [9] in 1928.

We have not found in the literature any report of a case of this disease occurring west of Cleveland. For this reason, having encountered and proved three cases of this condition in residents of Omaha, the following reports seem to us to be worth while.

REPORT OF CASES

CASE 1.—J. J., a Negro aged 20, presented himself at the University of Nebraska Hospital Dispensary, on July 21, 1932, because of a penile sore of five

Fig. 1 (case 1).—The inguinal buboes.

days' duration and tender swellings in the groins. He had been frequently and promiscuously sexually exposed.

The findings worthy of note on examination were confined to the penis and inguinal glands. There was an eroded papule, the size of a glass pinhead, to the right of the frenum in the sulcus coronarius. Dark-field examination did not reveal spirochetes. The inguinal glands on both sides were swollen, forming lemon-sized bilateral buboes (fig. 1). The skin was purplish red over the glands and rather adherent to them. There was no increased heat. The glands were of rubbery consistency and felt matted together. The swelling was confined for the most part to the inner half of each inguinal region. There was a slight sense of fluctuation on the right side, which was more marked in a few days, and thick green pus was aspirated.

7. De Wolf, H. F., and Van Cleve, J. V.: Lymphogranuloma Inguinale, J. A. M. A. **99**:1066 (Sept. 24) 1932.

8. De Wolf, H. F.: Personal communication.

9. Frei, W., and Koppel, A.: Klin. Wchnschr. **49**:2331, 1928.

The urine was normal. The blood count, including the differential count, gave normal results, except for a total white cell count of 13,150. In the last month the temperature has at times been as high as 101 F. The Wassermann test has been repeatedly negative.

The penile lesion healed spontaneously in a few days. During the last month two small sinuses have appeared over each inguinal swelling, with exudation of small amounts of thick green pus.

Dr. De Wolf of Cleveland sent us some Frei test antigen which he had found specifically positive in cases of lymphogranuloma inguinale and negative on control tests. This antigen was cultured, and a growth of organisms was not obtained. On Aug. 11, 0.1 cc. of this antigen was injected intradermally on the forearm. Two days later, there were deep reddish-purple erythema at this site and localized increased heat, and a rubbery, firm, cherry-sized nodule could be felt in the skin. As control injections of this antigen intradermally in medical students and in one of us (Dr. Cameron) evoked no reaction, the nodule occurring in this patient constituted a positive reaction to the Frei test.

The pus obtained on aspiration yielded negative results on bacteriologic investigation.

Case 2.—F. P., a Negro, aged 21, was seen in the dermatologic department of the dispensary, on Aug. 8, 1932, complaining of a painful swelling in each inguinal region, of three weeks' duration. He had been promiscuously exposed until seven weeks before, when he had acquired gonorrhea. This condition was successfully treated in the genito-urinary department, and had apparently entirely subsided when the inguinal swelling began. The last few exposures had been with a Negress from Kansas City. No penile lesion had been noticed.

On examination, no penile lesion was found. There were a fist-sized bubo in the right inner inguinal region and a small lemon-sized swelling on the left. The skin showed slight purplish discoloration and adherence to the underlying glands, which were rubbery firm, matted together, lobate and tender. There was slightly increased heat.

The Frei test was made on the forearm, and a markedly positive reaction was elicited. Control tests gave negative results. The Wassermann test had been repeatedly negative.

Up to the time of writing, the glands have increased slightly in size but have not broken down. The tenderness has diminished slightly. The temperature has occasionally been 100.5 F. Perhaps fractional roentgen therapy has modified the course in this case.

Case 3.—E. H., a Negro, aged 29, was seen in the dermatologic department of the dispensary, Aug. 17, 1932. He complained of a tender right inguinal swelling of two weeks' duration. He had had gonorrhea "off and on for ten years." He had been promiscuously exposed to date. No penile sore had been noted.

No penile lesion was found. There were an orange-sized lobate bubo in the left inner inguinal region and a small lemon-sized swelling in the right inguinal region. The skin showed slight purplish discoloration and adherence over the glands, which were rubbery firm, lobate, matted together and slightly tender. There was no increased heat or fluctuation.

The Wassermann test was negative. The oral temperature was 100.6 F.

The Frei test was made at once, and the reaction was found to be strongly positive two days later (fig. 2). Control tests were negative.

Three cubic centimeters of thick, light green pus was aspirated from the left inguinal glands. Cultures of this pus have proved to be sterile.

THE FREI ANTIGEN

The Frei antigen is prepared as follows: Pus is aspirated by an aseptic technic from the glands of a patient known to have lymphogranuloma inguinale. It is diluted with from five to ten times its volume of sterile physiologic solution of sodium chloride, and the mixture is heated for two hours at 60 C. (140 F.) the first day and for one hour the second day. It is cultured, and if it is found to be sterile and not to provoke an inflammatory papule in forty-eight hours when injected intradermally in normal subjects or subjects who have not had the specific disease, it constitutes the antigen.

Fig. 2 (case 3).—Photograph taken thirty-seven hours after the injection of the antigen, showing a positive reaction to the Frei test.

THE FREI TEST

One tenth of a cubic centimeter of the antigen is injected intradermally, not subcutaneously. In forty-eight hours, the appearance of an infiltrated papule from 0.8 to 2 cm. in diameter constitutes a positive test, which is specific for this disease. The test is occasionally negative until the disease has been present for a few weeks, and then it is found to be positive.

SOURCES OF CONFUSION

Lymphogranuloma inguinale is not to be confused with granuloma inguinale which is also often venereally contracted. In the latter condition, there is ulceration of the skin over the glands, without glandular suppuration; the disease is characterized by the presence of Donovan bodies in the large mononuclear cells of the pus from the granulation

tissue surface of the ulceration, and the patient has a negative reaction to the Frei test and responds to treatment with antimony and potassium tartrate given intravenously.

Lymphogranuloma inguinale is also not to be confused with chancroid and its bubo. In chancroidal disease the lesion is, or can be proved to be, auto-inoculable; the exudate contains the Ducrey bacillus, and the Frei test is negative, unless there is mixed infection.

As a comprehensive treatise on this disease by Zakon [10] and the report of De Wolf and Van Cleve [7] have recently been published in the American literature, discussion of the clinical course and pathology would be superfluous. Our purpose has been to record the presence of the disease in this part of the country.

SUMMARY

1. Three cases of lymphogranuloma inguinale have been discovered in Omaha.

2. The Frei test was strongly positive in all three cases and negative in controls.

3. The patients were Negroes, from 20 to 29 years of age.

4. In one of the cases, the condition may have been acquired from a colored woman from Kansas City. In the other two cases, the condition was probably acquired in Omaha.

ADDENDUM

Since these reports were submitted, two more cases of lymphogranuloma inguinale, proved by positive Frei tests, have come under our observation.

One patient was a colored girl, aged 19, who had been under treatment for syphilis and gonorrhea for four months. The other patient was a white man, aged 52, who was referred to our office by the Creighton Clinic for a Frei test.

1520 Medical Arts Building.

10. Zakon, S. J.: Lymphogranulomatosis Inguinalis or Durand-Nicolas-Favre Disease, Arch. Dermat. & Syph. **26**:238 (Aug.) 1932.

AINHUM

REPORT OF A CASE WITH ROENTGENOLOGIC FINDINGS AND REVIEW OF LITERATURE

DAVID BLOOM, M.D.
AND
BEN NEWMAN, M.D.
NEW YORK

Ainhum, as described in textbooks and various articles, consists in the formation of a narrow strip of hardened skin, the so-called "constricting ring," which gradually involves the whole circumference of the little toe, on a level with the digitoplantar fold. This constriction forms a deep circular furrow which gradually increases in depth and length and follows the absorption of the tissues, including the bone, underneath the ring, and as a result either of injury or of gangrene terminates in spontaneous amputation of the portion of the toe distal to the ring. The distal part of the toe is usually enlarged to two or three times its normal size, and before falling off assumes the form of a tumor attached by a pedicle to the rest of the toe. The amputation takes place at the second or third joint or through the phalanx. The ring is located near the proximal joint of the toe.

Cases of this condition among the natives of the African Gold Coast were reported by Clark,[1] in 1860, under the name of "dry gangrene of the little toe." In 1867, da Silva Lima,[2] of Bahia, Brazil, together with Wucherer, described this malady and introduced the name "ainhum" into the dermatologic literature. According to the Reverend J. T. Rowens,[3] this word is derived from the Yoruba language and means "a saw or file." Matas[4] states that it is derived from Brazilian Negro patois and means "fissure." According to the Reverend Doctor Rowens, the English pronunciation has the emphatic accent on the first syllable, and the "a" is sounded long as in the word "father." Da Silva Lima adds "for the benefit of those who are unacquainted with the Portuguese

---

From the Department of Dermatology and Syphilology, Bellevue Hospital, service of Dr. Howard Fox.

1. Clark: Tr. Epidemiol. Soc., London **1**:105, 1860.

2. da Silva Lima, J. F.: Gaz. med. da Bahia **1**:146 (Nov. 13) 1867.

3. Rowens, J. T.: Grammar and Dictionary of the Yoruba Language, Washington D. C., 1858.

4. Matas, R.: The Surgical Peculiarities of the Negro, Tr. Am. S. A. **14**: 483, 1896.

language," that ainhum, with the accent on the first syllable, if written for English speaking persons, should be spelled approximately "ay-nyoom." Howard Fox,[5] who visited Brazil in 1929, has heard ainhum pronounced "ine-yum," the *h* being silent in Portuguese. This pronunciation corresponds to that given by da Silva Lima;[6] according to him, different names are used for this condition by different tribes and authors. He has heard the name ainhum used by the Nagôs, the African Negroes, among whom this condition is most frequently found, and he has chosen this name from all other names he heard because it designates best the morbid process and the natural termination of the malady, namely, the slow separation of the affected toe.

REPORT OF A CASE

History.—M. R., a Negro, aged 39, appeared at the dermatologic clinic of Bellevue Hospital, on Jan. 7, 1932, complaining of a "sore" on his left small toe. His attention was first called to this lesion two years before he came to the clinic, when a "corn" developed on the outer surface of the toe; the corn caused him no annoyance, except an occasional twinge of pain when pressure was exerted on it. One year previously, he noticed that the toe was assuming a peculiar shape, and at that time he remarked that "it looked like a parrot's bill." Eight months before he was admitted to the clinic, the toe became more painful and tender. He obtained relief by pricking the "corn," which was on the outer and under surface of the toe, with a needle and expressing pus. For the past month, the patient had had constant pain in the toe, although he had not been able to express any more pus, and he had noticed that his toe was more misshapen than formerly.

He had never had any injury or disease of his toes or feet, although he went barefoot until he was 16 years of age.

The patient was born in North Carolina and lived there until twelve years before he was seen in the clinic, when he came to New York. He had never been outside the United States. He had always been in excellent health, except for an attack of pneumonia in 1915. He had measles and chickenpox in early childhood and contracted gonorrhea in 1912. Three years before we saw him he had a penile chancre, which was followed by a generalized eruption and was accompanied by a positive Wassermann reaction of the blood. Two injections of arsphenamine were the only treatments he received.

So far as the patient knew, no other member of the family had had trouble with their toes. His mother died of hypertension at the age of 65, and his father died of an unknown cause at the age of 45. His five brothers and sisters were well.

Physical Examination.—The patient was a well nourished, well developed, apparently full-blooded Negro with heavy musculature; he was of fair intelligence and mentally alert. The skin was of good texture and showed no evidence of keloidal or fibrotic changes.

---

5. Fox, Howard: Dermatology in Brazil, Arch. Dermat. & Syph. **20**:621, (Nov.) 1929.

6. da Silva Lima, J. F.: On Ainhum, Arch. Dermat. & Syph. **6**:367 (Oct.) 1880.

The left fifth toe had an S-shaped curve, with the distal part curved laterally and slightly rotated upward, so that the ball of the toe pointed forward and upward. The distal portion was about one and one-half times its normal size, with the skin more firm and tense, a trifle lighter in color and somewhat tender on pressure. The nail was dystrophic—thin, small and curved on itself—and because of the upward rotation of the ball of the toe, the nail seemed to lie at the center of the digit. A wedge-shaped fissure extended transversely across the under surface of the toe, being deepest at the lateral side. The fissure surrounded

Fig. 1.—Ainhum.

nearly half of the toe, but it did not involve the median side. It extended about half way into the depth of the toe (fig. 1). Its surface was smooth and somewhat moist at the interior, but at the margin of the skin it was covered with a moderately thick callus. No ulceration was present. On the dorsum of the toe opposite the line of the fissure, the skin was tense and greatly thickened, but no definite constricting fibrous band was seen or felt. The other toes and those of the right foot were normal, except for the presence of a slight hyperkeratosis on the plantar surface of the flexures of the toes.

General examination of the patient revealed no abnormalities. Vision was normal. The pupils were equal and round, and reacted to light and in accommodation. The fundi were normal. The heart was not enlarged, and the sounds were of

good quality. The blood pressure was 110 systolic and 78 diastolic. The pulsations of the dorsal pedis arteries were normal and easily felt. The abdomen was flat and soft, and no viscera were palpable. The members of the neurologic department conducted the examination of the nervous system and found no abnormalities.

Laboratory Examination.—The urine showed a faint trace of albumin but was otherwise normal. The Wassermann reaction of the blood was four plus. The cerebrospinal fluid could not be examined, as the patient refused lumbar or cisternal puncture. The blood count showed: red cells, 4,360,000; white cells,

Fig. 2.—Roentgenogram of the left foot showing the changes in the bone of the middle phalanx of the little toe.

6,800; polymorphonuclear leukocytes, 65 per cent; lymphocytes, 35 per cent; hemoglobin, 88 per cent. Microscopic examination of scrapings taken from the webs of the toes and the fissure showed no fungi.

A roentgenologic examination of the left foot was made, and the following interpretation was given by the roentgenologist: "There are fragmentation, absorption and atrophy of the distal portion of the second phalanx of the fifth toe. The distal phalanx is apparently intact. Soft tissue constriction is visible at the level of the second phalanx" (figs. 2 and 3).

Treatment.—The patient was advised to have the toe amputated, but he refused surgical intervention. We limited the treatment to daily cleansing baths and the application of boric acid ointment. These measures were sufficient to remove all subjective symptoms. Antisyphilitic treatment was instituted soon afterward, but up to the time of writing a course of injections of neoarsphenamine and bismuth has not changed the appearance of the lesion.

REVIEW OF THE LITERATURE

The cases reported by da Silva Lima occurred exclusively in the descendants of African slaves in Brazil. In 1880, in a lecture given

Fig. 3.—Roentgenogram of the left foot in the lateral position. Note the furrow.

at the fourth annual meeting of the American Dermatological Association,[6] he called attention to the diminution in the number of cases of ainhum in Brazil, which he attributes to a gradual diminution in the number of the African Negroes, because of the abolition of slavery and the decreasing importation of African Negroes into Brazil. According to da Silva Lima, the Creoles or their Brazilian born descendants are less subject to this malady. After Lima's report, many cases were reported from other countries and places, such as India, Argentine, the West Indies and Nossi Be. The majority of cases were from Africa, Brazil and India; Crawford[7] reported that 1 of every 2,500 patients

7. Crawford, D. G.: Notes on Four Cases of Ainhum, Edinburgh M. J. **31**:1120 (June) 1886.

with surgical conditions admitted to the hospitals in India was affected with ainhum.

In 1881, Hornaday [8] reported a case of ainhum in a 10 year old Negro girl in North Carolina. Somewhat previously, Pitman [9] reported a case in an adult Negro, also from North Carolina. In 1884, Duhring [10] reported a case in a Negro from West Virginia, and in 1885, Pyles [11] reported one case from the District of Columbia. Matas,[4] of New Orleans, was the first to recognize the disease in Louisiana and he cited Mirault and Frontan as having observed ainhum in the white race. Herrick [12] in 1898 reported a case in a Negro who had been living in Illinois for thirty years, and Abbe,[13] in 1911, reported two cases from the District of Columbia, one in a Negress born in Augusta, Ga., and the other in a Negress who had come from Maryland. Until 1911, there had been thirty cases reported in the American literature as having been found in the United States, mostly from the Gulf States and the Carolinas. Some of these, according to Abbe, are of doubtful diagnosis.

Although most of the cases reported have occurred in African Negroes and in Hindus, cases were also described in Arabs, Mussulmen and Chinese (Stelwagon [14]). Few cases have been reported in white persons. According to Aubry [15] who has described a case of ainhum in a white Italian, born in Algeria, De Brun, in 1904, reported ainhum in two white girls from Syria. Hyde and Montgomery [16] described three cases in white persons, and Castellani, in his discussion of Facio's paper,[17] in 1924, reported having seen two typical cases in the Balkans and one in an Italian peasant in southern Italy.

According to Maass,[18] the progress of the constriction and the furrow may stop spontaneously and the tumorlike distal part remain

8. Hornaday, E. H.: Ainhum, North Carolina M. J. **8**:116 (Sept.) 1881.

9. Pitman, cited by Hornaday.[8]

10. Duhring, L. A.: A Case of Ainhum (With Microscopical Examination by Henry Wile), Am. J. M. Sc. **87**:150 (Jan.) 1884.

11. Pyles, W. L.: M. News **66**:85, 1895.

12. Herrick, J. B.: A Case of Ainhum, M. Rec. **1**:246, 1898.

13. Abbe, T.: Two Cases of Ainhum, M. Rec. **79**:478, 1911.

14. Stelwagon, H. W.: Diseases of the Skin, ed. 9, Philadelphia, W. B. Saunders Company, 1921, p. 654.

15. Aubry, G.: Un cas d'ainhum chez un Européen, Bull. et mém. Soc. méd. d. hôp. de Paris **54**:1361 (July 21) 1930.

16. Hyde, J. N., and Montgomery, F. H.: Diseases of the Skin, ed. 7, Philadelphia, Lea & Febiger, 1900.

17. Facio, A. A.: A Review of Ainhum with Radiographic Demonstration of Its Bone Pathology, Proc. Internat. Conf. Health Prob. Trop. America, Kingston, Jamaica, 1924, p. 535.

18. Maass, E.: Beobachtungen über Ainhum, Arch. f. Schiffs- u. Tropen.-Hyg. **30**:32 (Jan.) 1926.

attached. The groove may be located in different places. According to Weinstein,[19] it is most often situated over the first interphalangeal articulation and next most frequently over the second phalanx. From our roentgenologic observations and also from those in Facio's case,[17] we may conclude that the constriction takes place over the second phalanx. According to Weinstein, the depression starts at the internal and inferior aspect of the little toe, and the outer aspect of the toe is the one which is last involved. In the case reported by Bharucha,[20] the groove was on the dorsum and the sides of the toe and not on the plantar aspect. In Abbe's case the groove was on the outer side, the dorsum and the plantar surface. In Aubry's case the groove apparently started at the interdigital space, as it was deeper there than elsewhere.

The little toe of either foot is most frequently involved. In a series of fifty cases which da Silva Lima has seen, there was involvement of the fourth toe in five. This observation is in accord with the opinion of Castellani,[21] who stated that 10 per cent of the patients show involvement of the fourth toe. The second or large toe is much more rarely involved. In Duhring's patient the little toes of both feet were affected. In a personal communication to Facio [17] Chalmers reported a case in which all the toes of one foot were affected. According to Maass, the Kru tribes of the Liberian coast maintain that the large toes are never affected. Stelwagon described a case in which there was loss of one small toe and evidence of the beginning of the condition in other toes. According to Weinstein, there is a tendency toward symmetrical involvement of the little toes. Probstein [22] expressed the same opinion. The Hindu patient of Bharucha had involvement of both little toes. According to Manson,[23] one foot alone may be involved, both feet simultaneously or one after another. The report of Wigley [24] is of special interest, in that his patient had hyperkeratosis palmaris et plantaris with ainhum-like constriction of the fingers. In 1929, Howard Fox [5] saw in Rio de Janeiro a Negro who had the characteristic constriction of one little toe, and who had lost the opposite toe previously by spontaneous amputation.

---

19. Weinstein, H.: A Description of Ainhum as Seen on the Canal Zone, with Report of Interesting Cases Occurring in One Family, South. M. J. **6**:651 (Oct.) 1913.

20. Bharucha, E. S.: Note on a Case of Ainhum, Indian M. Gaz. **52**:403 (Nov.) 1917.

21. Castellani, A., and Chalmers, A. J.: Manual of Tropical Medicine, London, Ballière, Tindall & Cox, 1919, p. 2241.

22. Probstein, J. G.: Ainhum, Ann. Surg. **88**:885 (Nov.) 1928.

23. Manson: Tropical Diseases, London, Cassel & Company, 1929.

24. Wigley, J. E. M.: A Case of Hyperkeratosis Palmaris et Plantaris Associated with Ainhum-Like Constriction of the Fingers, Brit. J. Dermat. **41**:188 (May) 1929.

Ainhum usually affects men at the age of from 20 to 40. However, quite a few cases have been reported in young children, old people and women. Bharucha's patient was a 60 year old Hindu. Hornaday's patient was a 10 year old Negro girl. Duhring's patient was a 40 year old Negro who had ainhum since the age of 10. Herrick's patient was a Negro over 60 years of age. Abbe's two patients were women. De Brun's patients were young girls. One of Welch's patients [25] was a woman. Aubry's patient was a 50 year old man who had the condition for nine months.

The patient affected with ainhum is usually perfectly well otherwise. However, Hyde and Montgomery have described three cases in which ainhum was associated with symmetrical palmar and plantar keratosis, and Stelwagon had a case in which the condition was associated with generalized pityriasis rubra pilaris.

Usually there is no pain until ulceration takes place, which may occur later in the course of the condition. In many cases however, there is no ulceration but the enlarged distal part of the toe attached by a narrow pedicle causes discomfort to the patient on motion, causing him to seek medical assistance if the spontaneous separation is delayed. Duhring's patient had considerable pain at all times. In Herrick's patient the pain was due to a small ulcer. According to Eyles,[26] in about half of the cases the furrow becomes the seat of painful ulceration. In the two cases of ainhum occurring in St. Croix since the American occupation in 1917 and reported by Welch in 1924, the patients complained of pain. According to Facio there is little discomfort and practically no pain. Three of the five patients came to the hospital when the distal part of the toe was just ready to fall off. Weinstein maintained that although there is no pain in the beginning, severe pain develops in the course of the malady, particularly over the groove, even though the foot is at rest. Aubry's patient did not have any pain.

Ainhum frequently occurs in several members of the same family. Da Silva Lima, Duhring, Weinstein and others have reported familial cases. Fifty per cent of Maass's patients gave a familial history of ainhum.

PATHOLOGIC DATA

Pathologic examination of the constricting ring and the distal and proximal parts of the toe was made by Wucherer,[27] Schuppel,[28] Duhring,

25. Welch, R. S. G.: Ainhum, U. S. Nav. M. Bull. **21**:352 (Sept.) 1924.

26. Eyles, C. H.: The Histology of Ainhum, Lancet **2**:576, 1886.

27. Wucherer, O.: Ueber Ainhum, eine der afrikanischen Rasse eigentümliche Krankheitsform, Virchows Arch. f. path. Anat. **56**:374, 1872.

28. Schuppel, F. G.: Virchows Arch. f. path. Anat. **56**:381, 1872.

Eyles, Unna,[29] Weinstein and Castellani. The difference in the descriptions of the pathologic process is undoubtedly due to the stage of the malady in which the specimen was removed. From all those reports the following summary and conclusion concerning the pathologic process may be made. The constriction takes place through proliferation of the epithelium and fibrosis of the cutis. Depending on the progress of the constriction, the tissues underneath the ring show more or less atrophy, and the bone shows rarefying osteitis and, ultimately, destruction and absorption. The blood vessels in the part of the toe distal to the constriction show endarteritis and periarteritis, and, because of interference with circulation, the soft tissues show fatty degeneration and edema. The part proximal to the ring shows atrophy. Separation of the toe takes place through the shaft of the bone or through an interphalangeal joint. In the specimen studied by Wucherer the first phalanx was missing, the second greatly diminished and the third little changed. In the patient studied by Schuppel the line of separation was in the middle of the first phalanx.

ROENTGENOLOGIC EXAMINATION

The roentgenogram in Herrick's case showed the separation taking place through the center of the distal third of the proximal phalanx, and the "shrivelled remains of the toe, including the bone, in the shell of the thickened skin." Abbe found in one of two cases he had observed for two years absorption of the base of the middle phalanx just proximal to the groove in the skin, fusion of the middle and ungual phalanx, a decrease in the diameter of the basal phalanx and disappearance of its medullar cavity. In the other patient, he found marked absorption of the bone at the groove, which was at the middle of the second phalanx, and on both sides of the groove, so that the second phalanx was almost gone except for a bit of the base. The ungual phalanx showed marked absorption of the head and atrophy of the shaft to half of its normal size.

Facio's roentgenologic findings show an almost total disappearance of the middle phalanx and partial disappearance of the proximal phalanx; also rarefying osteitis of the distal phalanx, although this phalanx still had its normal size and shape. In Welch's case there were rarefaction of the distal end of the proximal phalanx and thinning of its cortex.

In Aubry's case the roentgenograms showed absorption of the third phalanx to a bony rudiment and absorption and atrophy of the first phalanx terminating in a thinned-out extremity 1 cm. from the groove.

29. Unna, cited by Stitt: Diagnosis and Treatment of Tropical Diseases, Philadelphia, P. Blakiston's Sons & Company, 1922.

ETIOLOGY

According to Maass, there is no doubt that chronic local inflammation is the etiologic factor. But familial occurrence indicates predisposition, perhaps in the sense of contractile scars, in contradistinction to the predisposition of Negroes to keloids.

According to Unna, ainhum is to be considered as a local ringform scleroderma, causing endarteritis and rarefying osteitis.

According to Matas, the condition "is evidently a trophoneurosis which gives rise to an annular scleroderma." Abbe also considers it to be a trophoneurosis. Stelwagon considered the probability of ainhum's being a trophoneurosis, and Pusey,[30] who is also inclined to the same opinion, considers the possibility that Filaria perstans is the cause, being commonly found on the west coast of Africa.

Eyles believes that irritation is the cause of the pathologic process in ainhum. Castellani is inclined to believe that the condition is of parasitic origin, the infection taking place probably through the small superficial lesions or wounds which may be found in people going barefoot. Weinstein[31] considers ainhum to be a trophoneurosis, and denies that barefootedness is an etiologic factor. If barefootedness were the cause, "natives of many countries should be affected while most of the cases reported are in Negroes living in the city and wearing shoes." According to Lima, this theory would also not explain why barefooted Brazilians or Creoles are not affected and why only the African Negroes in Brazil have the disease. Weinstein has found that the sensation of the affected toes is diminished or increased but not entirely lost. The plantar reflexes are absent.

Facio failed to find any neurologic abnormality, and therefore discards the theory of trophoneurosis. He believes that the condition is produced by a "purely unintentional mechanical cause such as the constant irritation and injury of the little toe to which the flat barefooted dark skinned natives are naturally subjected." He agrees with Manson, who found that the joint flexures of the toes of many Negroes, even those not affected with ainhum, had a thick, rough, scaling, and sometimes even ulcerated skin, particularly at the proximal joint of the little toe.

In order to verify this statement of Manson, one of us examined the feet of about fifty Negroes and found hyperkeratosis of the plantar surface of the toes in twenty, particularly at the plantodigital fold. In these twenty men the fifth toe was invariably involved and there was usually also hyperkeratosis of the fourth toe.

---

30. Pusey, W. A.: The Principles and Practice of Dermatology, ed. 4, New York, D. Appleton and Company, 1925.

31. Weinstein, H.: A Description of Ainhum with Report of Interesting Cases Occurring in One Family, Proc. Canal Zone M. A. **6**:110, 1911.

In explaining the reason for the frequent involvement of the little toe, Facio called attention to the position of the latter, which exposes it to much more constant irritation than the other toes.

To Welch it appears most plausible that ainhum is due to a trophoneurosis probably combined with a traumatic element. In one case he found that the tactile sense was slightly impaired in the distal part of the toe, although the reflexes were normal.

De Brun's patients showed muscular atrophy of the affected limb, trophic disturbances of the skin and the nails, vasomotor disturbances and thermanesthesia. Aubry, like most of the other authors, did not find any neurologic abnormality.

TREATMENT

Most authors agree that amputation of the toe or removal of the distal part is the best treatment, if the constriction is far advanced. Da Silva Lima believes that ainhum can be cured without mutilation in the beginning of the process by incision of the skin perpendicular to the line of the constricting ring or the furrow. According to Castellani, amputation is the best treatment, as recurrence takes place after the constricting ring is cut. Facio considers amputation above the constricting line as the treatment of choice. He has failed to obtain favorable results from longitudinal incision into the groove.

SUMMARY AND COMMENT

We have reported a case of ainhum of two years' duration in an American Negro living in New York City for the last twelve years. In spite of the fact that the patient had syphilis, we came to the conclusion, after a thorough physical and a fairly complete laboratory examination and after having observed the negative result of antisyphilitic treatment, that a specific cause could not be found to account for the presence of the condition. Roentgenologic study of the bones of the affected toe has also been made, and the observations are in accord with those of the few previous reports in the literature.

We have given a review of the literature.

We are inclined to believe that the pathologic process is a mechanical one produced by a fibrotic constriction which is induced by some previous mechanical or infectious injury.

135 East Fiftieth Street.

853 Seventh Avenue.

LEPROSY

COMMENTS ON IN VITRO BEHAVIOR OF LEPRA AND CERTAIN OTHER ACID-FAST MICRO-ORGANISMS IN PRESENCE OF LEUKOCYTES

O. E. DENNEY, M.D., D.T.M.
Surgeon, United States Public Health Service
AND
BERNICE E. EDDY, PH.D.
Laboratorian in Bacteriology, United States Marine Hospital
(National Leprosarium)
CARVILLE, LA.

Several years previous to the actual recognition of the causative agent of leprosy, Hansen saw and described certain elastic, fragile, brownish masses which later investigation proved to be collections of lepra bacilli and which were called "globi" by Neiser because the masses are usually of spherical form. Considerable discussion arose, thereafter, concerning the origin of these globular masses; Hansen, Neiser and others were of the opinion that they were intracellular, while Unna held the view that they were collections of bacilli formed within lymph spaces.

In the sixty years that have ensued since Hansen's earlier descriptions, these globular masses have received only passing attention; more recent observers dismiss them with the remarks that characteristic colonies, apparently zoogleic in nature, may be seen; some describe cells or cell-like bodies filled to distention with acid-fast organisms; others, under the term "lepra cells," describe phagocytes that have engulfed acid-fast organisms. From the experimental standpoint, serious consideration does not seem to have been given to the possibility that these globi may represent a part of the life cycle of the organism.

Modern methods of preparing a smear of leprous material for bacterioscopic examination by snipping off a piece of suggestive tissue with curved scissors and rubbing the cut surface against a slide with a scalpel, while sufficient for routine diagnostic purposes, rupture many of the globular masses and spread the freed organisms through the specimen. Microtome sections of leprous tissue frequently fail satisfactorily to demonstrate the characteristics of globi: When the tissue is too thick, the relationships are obscured, and when too thin, many globi are traumatized by the knife (fig. 1).

Published with the permission of the Surgeon General, United States Public Health Service.

Read before the Section on Dermatology and Syphilology at the Eighty-Third Annual Session of the American Medical Association, New Orleans, May 11, 1932.

If, from a suitable lesion of skin leprosy, some tissue juice is expressed through the shallow cut of a scalpel and is gently drawn across the slide, air dried, fixed and stained in the usual manner, there should be seen, in addition to free acid-fast rods and intracellular organisms, disklike bodies (fig. 2) consisting of a few or uncountable numbers of rods seemingly confined within a membrane; these collapsed globi average in size approximately that of a lymphocyte, but they vary greatly.

The elastic, fragile nature of globi may be demonstrated in a freshly stained preparation before the mounting fluid has congealed by select-

Fig. 1.—Section of leprous nodule: two medium-sized globi traumatized by the microtome knife. The original spherical shape of the masses may be adduced from the depth of the slices remaining in situ. Free bacilli scattered through the field. About × 1,300.

ing a field containing a large globus and gently pressing the oil immersion lens against the coverslip by use of the coarse adjustment of the microscope; exceptionally, one may see the globus rupture; usually, thereafter, one sees freed rods, detached one from another, floating through the mounting fluid, sufficient numbers remaining fixed to the slide to determine the original site and size of the globus.

The arrangement of the bacilli constituting a globus is described by some authors as resembling "a bundle of cigarets"; it would seem that they might be more fittingly described as resembling cigarets loosely filling a well inflated balloon. The organisms seen in nature are frequently arranged with their long axis against the restricting

membrane; even when the globus has collapsed and has been dried and stained, the individual rods make no impression in the limiting membrane.

Occasionally, in the course of skin or mixed leprosy, there occur subcutaneous abscesses of leprous origin which contain globi and phagocytosed rods in preponderance over free bacilli; pus aspirated at intervals will usually show an increase in vivo in the number and size of the globi until the pus has become inspissated or disintegrated by contaminants from the skin. It will also be apparent that bacilli that have been phagocytosed by the leukocytes continue to multiply until

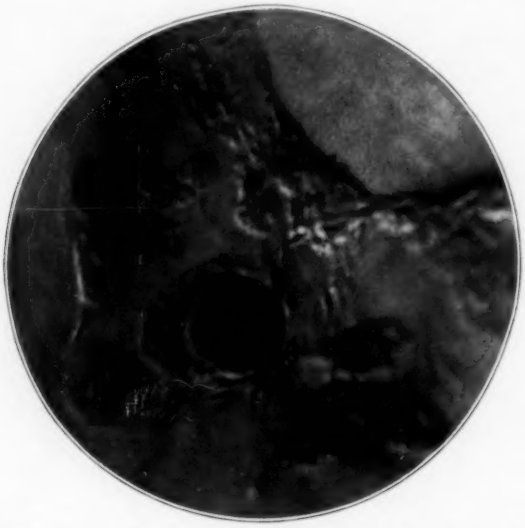

Fig. 2.—Routine, prepared smear of "leper juice": one small intact globus accidentally superimposed on a leukocyte; lymphocytes, a few bacilli and cellular débris scattered throughout the field. About × 1,300.

the cellular characteristics of the phagocyte are lost and there remains a distended cell wall with a compressed nucleus— the "signet ring" of Hansen.

On the hypothesis that a globus consists of a colony of leprosy bacilli growing within a phagocytic cell, multiplication of the organisms taking place in the presence of suitable pabulum from the protoplasm of the phagocyte and by virtue of the relative isolation from deleterious influences, the senior author has, for more than fifteen years, attempted to cause the proliferation of acid-fast organisms from lepers by first incubating in vitro leprous pus cells suspended in physiologic solution of sodium chloride; later, by mixing leukocytes from nonleprous human

beings with leprous materials; and, more recently, by the addition of freshly obtained leprous material to rabbit leukocytes suspended in Tyrode's solution. The evaluation of such proliferation, in the absence of successful animal inoculation, would of necessity depend on the pathognomonicity of globi. Accordingly, more than fifty cultures of acid-fast bacilli, obtained through the courtesy of Dr. G. W. McCoy, Director, National Institute of Health, Dr. C. W. Duval, School of Medicine, Tulane University, and Dr. M. H. Soule, Hygienic Laboratory, University of Michigan, were subjected to the influence of leukocytes by the following technic:

(*a*) Leukocytes were obtained in the usual manner by injecting 25 per cent peptone into the pleural cavity of a rabbit; the fluid was withdrawn after about twenty-four hours and diluted with Tyrode's solution.

(*b*) A small loopful of the bacilli to be studied was broken up in a few drops of Tyrode's solution and filtered through a thin layer of cotton to remove the clumps.

(*c*) Glass tubing of approximately 3 mm. bore was cut in 8 inch (20.32 cm.) lengths, plugged at both ends with cotton and sterilized with dry heat. One inch (2.5 cm.) from one plug, a constriction was drawn with the flame, reducing the bore to about 1.5 mm. The opposite end of the tube, about 1 inch from the cotton plug, was drawn to capillarity and clipped, making the entire pipet about 12 inches (30.48 cm.) long.

(*d*) By means of a rubber tube attached to the cotton-plugged end of the pipet and mouth suction, the bacillary suspension and the leukocytes, after thorough mixing in a serum tube, were drawn into the pipet, which was then flame sealed.

(*e*) The pipets were incubated at 37 C.

(*f*) At appropriate intervals the contents were examined by inverting the pipet and gently tapping the sides, causing the fluid to flow back and forth (the constriction preventing the fluid from nearing the cotton plug), by clipping the capillary end near the seal with flamed scissors and blowing out a droplet onto a microscope slide. The droplet was spread, dried and stained in the usual manner, and the pipet was again flame sealed.

After some preliminary experimentation, it was determined to make routine observations of the bacillary leukocytic suspensions at twenty-four hour intervals until the leukocytes became disintegrated and the débris overgrown with bacilli.

The bacteria used in this experiment have been divided, for convenience of study, into five groups: (1) the acid-fast organisms universally accepted as pathogenic; (2) the acid-fast organisms generally accepted as nonpathogenic; (3) those isolated from lepers in various parts of the world; (4) acid-fast organisms isolated from rat leprosy, and (5) acid-fast organisms (not in "cultures") from lepers at the National Leprosarium.

1. The pathogenic acid-fast bacteria consisted of one or more strains of Mycobacterium tuberculosis hominis, bovis, avium, piscium and

chelonei. The proliferation characteristics of these organisms in the presence of rabbit leukocytes were so nearly alike that they may be described as though identical: Staining of the preparations, after thirty minutes' incubation, showed evidence of phagocytosis, many of the leukocytes having engulfed one or several bacilli; free bacilli or small clumps, also, were scattered through the microscopic field; at twenty-four hours many of the phagocytes were distended with bacilli, the latter growing in a seemingly unorganized manner, and not infrequently single rods protruded through the cell wall of the phagocyte. Extracellular clumps of bacilli were larger than when first mixed with leukocytes. At the end of forty-eight hours, irregular clumps or colonies of bacilli predominated in the microscopic picture, and the leukocytes, certainly dead, appeared as débris, or with their histologic characteristics so altered as to be not clearly demonstrable (fig. 3). Further daily observations were without interest, excepting that when fresh leukocytes were added to the preparation the same cycle of phagocytosis, prompt death of the leukocytes and irregularly clumped colonization of the bacilli continued.

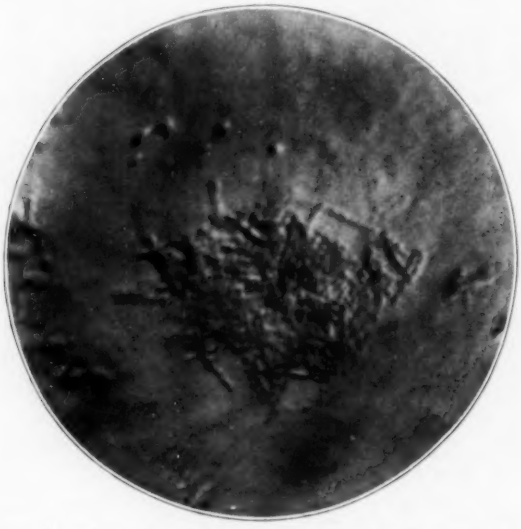

Fig. 3.—M. tuberculosis-hominis: irregular colonization, rabbit leukocytes remaining as débris. About × 1,300.

2. The nonpathogenic acid-fast bacteria consisted of one or more strains of Mycobacterium smegmatis, berolinensis, phlei and stercusis. Thirty minutes after suspension and incubation of the various bacilli of this group, phagocytosis was demonstrable. It seemed to the observ-

ers, however, that phagocytosis of these nonpathogenic bacilli under essentially identical conditions was not so marked as the apparent affinity between rabbit leukocytes and the bacilli of the tuberculosis group. At the end of twenty-four hours, intracellular growth of the nonpathogenic acid-fast bacteria was not striking, although extracellular colonization was marked. At the end of forty-eight hours, no apparent increase in intracellular growth was noted, and leukocytic disintegration was marked. Extracellular colonization continued and predominated in the microscopic field and was particularly extensive in clumps of disintegrating leukocytic material.

3. The acid-fast bacteria of the third group consisted of twenty-five strains obtained through several laboratories, and represent subcultures from twenty primary isolations from lepers by different leprologists in various parts of the world. The proliferation characteristics of the twenty-five micro-organisms individually simulated the behavior of either the foregoing described pathogenic acid-fast bacilli or the nonpathogenic bacilli. Eleven appeared to be distinctly attracted to leukocytes, which promptly phagocytosed single organisms or attached themselves to small clumps; intracellular proliferation continued until the phagocyte became distended and eventually ruptured, individual organisms often protruding through the cell wall of the phagocyte. Fourteen appeared to have no especial chemotactic attraction for the leukocytes and grew principally extracellularly, but when phagocytosed, they appeared not to proliferate intracellularly. Neither the intracellular nor the extracellular colonization of the individual members of the twenty-five strains of acid-fast bacteria of this group (fig. 4) bore resemblance to the densely compact, seemingly restrained colonization of rat or human leprosy bacilli. The periodic addition of fresh leukocytes did not alter the proliferation characteristics.

4. Acid-fast bacilli of the fourth group from rat leprosy consisted of but one strain of M. leprae-murium, which at the end of thirty minutes after suspension with fresh leukocytes evidenced considerable chemotactic affinity for the leukocytes, single organisms and small clumps being phagocytosed. At the end of twenty-four hours extracellular clumps were much in evidence; intracellular inclusions consisted, apparently, of one or more colonies of bacilli distending and distorting the cell wall, presenting the picture of the "lepra cell" or the "signet ring" of Hansen. Some of the extracellular colonies were compact and spheroidal in shape, and appeared to be indistinguishable from globi. At the end of forty-eight hours the intracellular inclusions appeared to be much larger, but still contained within the much distended cell, the nucleus being compressed and flattened so that it was with difficulty identified as such. The extracellular growth continued to show evidence

of an increase in size both as the irregular, stellate masses and as the compact spheroidal globus-like bodies.

5. Acid-fast bacilli of the fifth group were obtained from lepers at the National Leprosarium. The observations were confined to materials of two kinds: (1) tissue juice from leprous nodules, obtained by scalpel incision, the material, therefore, containing considerable whole blood, and (2) pus aspirated from subcutaneous leprous abscesses. Observations with these two kinds of material have been made repeatedly over a period of years.

When fresh leukocytes are added to "leper tissue juice," examination after thirty minutes' incubation evidences considerable affinity between

Fig. 4.—M. lepra Clegg: irregular colonization; bacilli proliferating in and among rabbit leukocytes. About × 1,300.

the acid-fast bacilli and the living leukocytes, the latter phagocytosing readily and with avidity single organisms and preexisting small globi. At the end of twenty-four hours, no increase has yet been demonstrated to our satisfaction in the number of either extracellular bacilli or globi, or any marked increase in the size of intracellular inclusions of small globi. At forty-eight hours, the picture is not materially changed. When at this point additional fresh leukocytes are added, subsequent observations seem to indicate a diminution in the number of extracellular rods or globi or intracellular inclusions, as would be presupposed from the great dilution, the result of adding fresh leukocytic suspension.

When, however, pus is aspirated from a subcutaneous leprous abscess, suspended in physiologic solution of sodium chloride or in

Fig. 5.—M. lepra (from leprous pus): one almost intact globus and several small ruptured globi. About × 1,300.

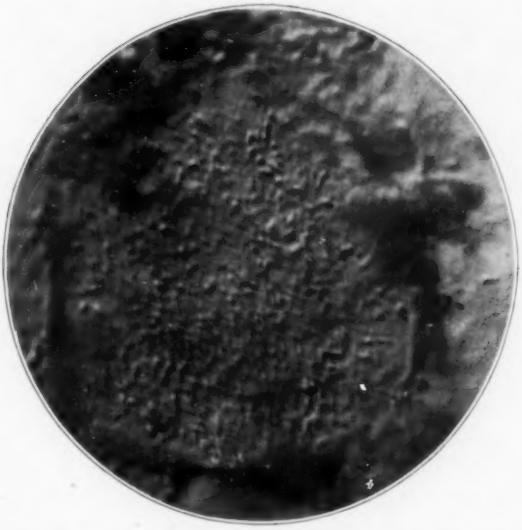

Fig. 6.—M. lepra (from leprous pus): large dense globus almost completely surrounded by rabbit leukocytes. About × 1,300.

Tyrode's solution and incubated, there appears to be a definite increase in the number of globi (fig. 5) and a coincident increase in the size of the globular masses (fig. 6), intracellular and extracellular, for the succeeding three or four days. When fresh leukocytes are added, phagocytosis is noted at the end of thirty minutes. Many of the free rods, either single or in larger numbers, and the smaller globi are engulfed, while the large globi are surrounded, in part or in whole, by numbers of leukocytes. Twenty-four hourly observations show, for approximately four days, evidence of an increase in the size of smaller and larger globi whether they have been engulfed by leukocytes or simply surrounded by them. Following this, proliferation does not seem to progress; the globular bodies, intracellular and extracellular, remain as such for long periods of time, and observations made as long as a year or more after the original suspension show globular masses and leukocytic débris. When, however, after an interval not exceeding four days after the original suspension is made, fresh leukocytes are added, proliferation of small globi evidently proceeds, as well as proliferation of acid-fast bacilli contained within the intracellular or extracellular globi. This cycle has been repeated through numerous progressive additions of fresh leukocytes, and the numerical relationship of globi and freshly added leukocytes seems to indicate clearly a progressive increase in the number of globi only so long as free acid-fast rods persist. When that stage of dilution has been reached where there are few or no single acid-fast rods in the suspension, further development of new globi does not seem to occur.

SUMMARY

Acid-fast bacilli suspended in Tyrode's solution have been subjected in vitro to living leukocytes obtained from artificially produced pleural effusions of rabbits. The bacilli of the tuberculosis group proliferated readily in the presence of both living and subsequently dead leukocytes. Intraleukocytic proliferation proceeded until the death of the phagocyte was evidenced by the protrusion of bacilli through the cell wall and by the fact that the chromatin disappeared from the nucleus so that the whole cell took but a faint stain. Both intracellular and extracellular colonization of the various tuberculosis bacilli progressed as irregular stellate clumps.

Acid-fast bacilli of the nonpathogenic group proliferated readily in the presence of rabbit leukocytes, but were not greedily phagocytosed. Colonization was predominantly extracellular, and the colonies were irregular and often stellate.

Of the acid-fast bacilli cultivated by others from lepers, eleven strains were distinctly attracted to the leukocytes, either as single rods

or as small clumps; intracellular proliferation continued and single rods penetrated the cell wall until eventually growth ruptured the phagocyte; fourteen strains appeared to grow independently of living leukocytes and therefore principally extracellularly, and when phagocytosed, they appeared not to proliferate rapidly, if at all, intracellularly.

Acid-fast bacilli from rat leprosy were chemotactically attracted to fresh leukocytes, single rods and small clumps being phagocytosed. Proliferation continued intracellularly until the phagocyte was distended to the point of rupture, the intracellular growth sometimes being dense and distinctly globular. Extracellular colonies progressively increased in size; some of the dense, spherical masses were indistinguishable from globi.

Lepra bacilli obtained from an incision in a nodule and therefore containing whole blood, when subjected to living leukocytes, showed chemotactic affinity between the living leukocytes and the acid-fast rods or globi, but no evidence of proliferation of the single rods or a definite increase in the size of the globi.

Pus from leprous abscesses, when subjected to the influence of living leukocytes, evidenced chemotactic affinity between bacilli and leukocytes and no definite increase in the number of free bacilli, but a definite increase in the number and size of globi. Subsequent additions of fresh leukocytes appeared to cause the formation of additional small globi and to stimulate a progressive increase in the size of the globi. This formation of new small globi apparently ceased when free organisms were no longer present in the suspension.

COMMENT

The hypothesis that globi result from the proliferation of leprosy bacilli within phagocytes is not a comprehensive explanation of globus formation, since globi in leprous tissues do not always appear in association with leukocytes. Globi may form, however, within the body of leukocytes apparently as the result of proliferation of single phagocytosed rods. It is not believed that a leukocyte, living or dead, may be distended by a growing globus until, as is occasionally seen, the colony measures 100 microns or more in diameter. That these globular colonies of bacilli are accidental collections compressed by their own growth into spherical bodies and the shape maintained by cohesion of zooglea or other self-excreted substance is not tenable, since in a fresh, unstained specimen or in a stained specimen, the globi may be mechanically compressed and ruptured, and organisms free and unattached to one another may be seen to escape from the restraining wall.

The nature of the wall of a globus has not been demonstrated by us by the usual or the available special stains, nor can we introduce con-

clusive evidence that a globus has a restraining wall, excepting to state that a typical globus is a compact, spherical body containing in vivo small or large numbers of rods which may be seen floating freely, but which are restrained at the periphery by a definite barrier. In stained preparations, the rods nearest the periphery seemingly aline themselves with their long axis against the periphery.

Of the fifty subcultures of laboratory strains of acid-fast bacilli submitted to living leukocytes, but one, that from rat leprosy, has shown in this experiment any conclusive evidence of globus formation. While we are of the opinion that globus formation is a characteristic of rat and human leprosy, it is not felt that this experiment demonstrates that other acid-fast bacilli may not have had at one time the characteristic of globus formation, particularly in view of the fact that the subcultures of these various acid-fast bacilli have been in a laboratory environment for from ten to perhaps thirty years or more.

CONCLUSIONS

1. Of the fifty strains of acid-fast Mycobacteria isolated by others and suspended with living leukocytes, but one, that from rat leprosy, showed evidence of globus formation.

2. Acid-fast bacilli contained in "leper juice" suspended with living leukocytes did not evidence proliferation of either free acid-fast rods or globi.

3. Acid-fast bacilli in pus obtained from leprous abscesses evidenced an increase in the number and size of globi, which proliferation was enhanced by the addition of living leukocytes and which continued apparently until there were no free organisms in the suspension.

ABSTRACT OF DISCUSSION

DR. C. W. DUVAL, New Orleans: Dr. Denney is certainly to be congratulated on his ingenious culture method for the determination of the nature of the "globoid" bodies in the leprous lesion. Since the days of Hansen these bodies, known as "globi," have attracted a great deal of attention, and there have been considerable controversy and speculation concerning their nature. Some leprologists regard the "globoid" bodies as colonies of leprosy bacilli, while others hold with Unna that they are mechanically collected masses of bacilli in the tissue spaces and lymphatics. The view held by Unna prevailed until Dr. F. B. Gurd, in a careful histopathologic study, showed that the "globi" are not actually in the lymphatics but in large endothelial cells (the so-called "lepra" cell) of the lesion. Another view regarding the "globi" is that they are colonies of bacilli in phagocytic cells. This view I do not concur in, although Dr. Denney shows that phagocytosis and subsequent growth of leprosy bacilli occur in vitro for certain leukocytes.

Usually the neutrophil or the polymorphonuclear leukocye has digestive properties for phagocytosed bacteria. Phagocytic cells commonly digest what they have ingested. There is no proof that the intracellular bacilli of the leprous lesion are

ever digested. On the other hand, there is considerable evidence to show that the leprosy bacilli of "globi" have actually invaded the essential cell of the leprous lesion. In these cells they find suitable pabulum and presumably a protection against the extracellular influence of the host. In 1911, I stated in a publication that the "globi" were colony masses of leprosy bacilli, the result of previous invasion of endothelial cells by Bacillus leprae and their subsequent intracellular colonization. Within these cells B. leprae utilize the end-products of protein digestion. Regarding the theory that "globi" might be a stage in the developmental cycle of the Hansen bacillus, there is nothing to support the contention.

The artificial cultivation by Dr. Denney of leprosy bacilli from "globi" in a leukocytic medium makes me wonder why he did not use living tissue cultures of cells that we know are concerned in the production of the leprous lesion. I have in mind the endothelial and connective tissue cells, which are readily cultured in vitro. Such tissue cultures would afford a living pabulum and other suitable conditions more approximating that of the human tissues. I am inclined to believe that he would have had even better results in the study of the nature of the "globi" than he had with the neutrophilic leukocytes of pus. The neutrophil, in my opinion, is not the cell for the in vitro cultivation of leprosy bacilli, because it is a phagocyte and by virtue of this function is antagonistic to the leprosy bacillus.

Dr. Harold N. Cole, Cleveland: I was much interested in the paper of Dr. Denney and the remarks of Dr. Duval. There is another granuloma in which there is a cell that is somewhat similar to this globus. I refer to granuloma inguinale, in which there is also a large cell with inclusion bodies, the Donovan bodies, which are quite similar; in such cases the cell may be crushed, and the bodies will be extruded.

Dr. H. Windsor Wade, Culion, P. I.: I agree with the remarks of Dr. Duval that to study this globus formation the cell that is normally involved in the pathologic process would be better than the leukocyte. In the large mononuclear leukocyte the organism, as Dr. Duval said, does seem to find a bland site and little antagonistic influence, so that it could progress. In discussing this question with the European dermatologists who are interested in leprosy, I had to agree that such masses may occur in lymph spaces, but I believe that Dr. Denney and Dr. Duval are correct in the view that normally they are present in these cells.

One thing that may have to do with the organism in these cells is what Unna called "schlime." If one makes a smear and fixes it in osmic acid and then drops it into the solution, the organism is a fairly deep gray and the background is a light gray, and around the organism one frequently sees a clear zone with none of the protein of the smear. I do not think that there is a shrinkage of the body. In the globi, one sometimes sees distinct masses take color, the ordinary masses taking color, and the organisms that Unna called "schlime." This is not mucus, but a material produced by the organism in which it is protected. It may be that the therapeusis of leprosy depends on using a drug that will penetrate this material, get into the globus and act on the organism. Naturally, not all drugs will do this. It may be that the effect of chaulmoogra oil is due to this property of penetrating the bacilli. One will often find the globi definitely taking up a great deal of fatty material.

Dr. Ralph Hopkins, New Orleans: Of interest in the paper by Dr. Denney is the correlation between the growth of the Hanson bacillus in the leukocytes and the distribution of the nodules in leprosy of the skin. Favorite sites for the development of nodules are regions in which diapedesis of leukocytes may be assumed to occur most easily. Such regions as are subjected to repeated hyperemia or inflammation resulting from trauma, as the tip of the elbow, or from pressure or

friction, heat or cold; actinic rays or other causes of irritation may be assumed to be present, on account of the resultant dilatation of the capillaries, conditions favorable for the passage of the bacilli carrying leukocytes from the blood stream into the skin; attention has been called to the fact that it is precisely for such areas that the nodules of leprosy have a marked predilection.

Dr. O. E. Denney, Carville, La.: Replying to Dr. Duval's pertinent inquiry as to why we did not use tissue culture, the United States Public Health Service has two leprosy stations, one at Hawaii, the other at Carville. In Hawaii we are trying to cultivate the bacillus, using proliferating tissues. It is agreed that the leukocyte is a good scavenger but not a particularly generous host; it is interesting that the polymorphonuclear leukocytes in suspension die quickly. I am not prepared from the experimental standpoint to convince Dr. Duval as to whether or not globi represent a part of the life cycle of the organism, but I am inclined to think that they do. I might argue conversely that globi continue to develop only so long as free bacilli are present.

Regarding the "schlime" of Unna referred to by Dr. Wade, we at times found many of these large masses which stained by fuchsin but did not decolorize. The significance of these masses is not evident.

MYCOSIS FUNGOIDES, "A TUMEUR D'EMBLÉE SOLITAIRE"

REPORT OF A CASE

JOSEPH JORDAN ELLER, M.D.
Assistant Professor of Dermatology, Columbia University

AND

CHARLES ROBERT REIN, M.D.
Clinical Assistant, Columbia University

NEW YORK

This case of mycosis fungoides is reported because of its unusual clinical features.

REPORT OF CASE

History.—A white man, married, aged 39, had an unimportant past history, except for incision of a cervical lymph gland at the age of 3 and hemorrhoids for the past few years.

On Oct. 3, 1931, the patient, while sleeping on the sand at the seashore, was awakened by a stinging sensation on the dorsal surface of the right forearm just above the wrist. Although he had not seen an insect, the patient felt sure that he was bitten by one. He continually scratched the affected area because of the intense itching. Within two or three days there were inflammation and swelling. A physician saw him at this time and referred him to the Coney Island Hospital with a diagnosis of carbuncle. Examination of the lesion showed a large, circumscribed, indurated, painful, fluctuating tumor on the dorsal surface of the right forearm measuring 7 by 6 cm. On October 27 an incision 1 inch (2.5 cm.) long was made through the skin into the tumor mass, but no pus was found. This fibrotic tumor was then removed en masse, and the incision closed with silk sutures. The pathologic report on this specimen at the hospital was chronic, suppurative, inflammatory reaction and infiltration of the cutis and subcutis with polymorphonuclears and round cells. On October 29 the wound began to suppurate, and wet dressings were applied. The following day the sutures were removed to allow more adequate drainage. On November 2 the patient left the hospital of his own accord and was referred to the outpatient department for further treatment. In spite of local treatment the lesion became indurated, tender and pruritic. The edges gaped widely.

On November 13 a nonpruritic eruption developed, which began on the face and became generalized in forty-eight hours. He was readmitted to the hospital on November 16.

Examination.—Physical examination showed a well developed white man, weighing 165 pounds (76 Kg.). With the exception of the lesions of the skin and of the mucous membranes, the general physical examination gave negative results. The temperature was 102 F. On the face and neck there were a large number of bright red, soft, fleshy papules and nodules varying from 5 to 15 mm.

From the Department of Dermatology and Syphilology, Broad Street Hospital and Pan American Clinics.

in diameter. There were no lesions above the hairline of the scalp, but some were present on the forehead and on the bearded portion of the face. On the trunk and on the extremities the lesions were in various stages of evolution and involution. There were many bright red macules, papules and nodules varying in size from that of a pinhead to that of a half dollar. Some of the larger lesions were slightly infiltrated, and were covered by fine scales over their central portion. These erythematous papules and nodules were more numerous over the lower part of the abdomen and thighs. Some of the lesions had become pustular. On the abdomen and on the chest were many reddish-brown areas, varying in size

Mycosis fungoides showing primary lesion on right forearm and secondary generalized eruption, the latter having appeared two weeks subsequent to the appearance of the primary lesion.

from 2 to 15 mm., which appeared to be the residuum of older involuted lesions. There were lesions between the webs of the fingers and on the plantar surfaces of the feet, but no noticeable lesions on the palms. There was a small pea-sized superficial erosion on the hard palate. On the dorsal surface of the right forearm, just above the wrist, there was a large, ulcerated, granulomatous lesion measuring about 9 by 11 cm., extending down to the muscle. The edges were pearly white, rolled and rather firm to palpation, simulating an epithelioma. The base was covered with considerable granulation tissue. There was no adenopathy.

Treatment and Course.—In addition to the local treatment for the large ulceration on the right forearm and the oral lesion, several other therapeutic measures were instituted, such as injections of arsphenamine and sulpharsphenamine, daily injections of solution of potassium arsenite and generalized roentgen irradiations. The patient received 1½ skin units over his entire body in four weeks. At first there was a definite response to roentgen rays, but later they apparently were ineffective, and new lesions appeared.

Nearly every day new dark red macular lesions developed, some of which disappeared in from two to three days, while others continued to increase in size. Some of them became pustular and occasionally became covered by thick, laminated, rupial crusts. When the larger lesions underwent involution, they left a smooth, reddish-brown area.

The third week, a large granulomatous, sloughing ulcer appeared on the anterior surface of the upper third of the left leg, extending down to the tibia. Roentgen examination of this lesion showed no involvement of the underlying bone. On the forehead, a large abscess measuring 2 by 5 cm. developed which was covered by a thick, laminated, rupia-like crust. Several large lesions on the face and in the axilla became pustular and drained spontaneously. The exudation and crusts of these lesions had an obnoxious odor. The patient complained of considerable rectal pain due to the ulceration of the hemorrhoids. Marked pitting edema of the ankles developed.

The temperature rose to 104 F. and became septic. A few days before death the patient became delirious and comatose. He died on Jan. 31, 1932.

Laboratory Data.—Repeated blood counts, chemical analyses of the blood and Wassermann and Kahn tests gave negative results. Throughout the patient's illness, urinalyses made as a routine gave essentially negative results. Blood cultures were negative except the one made the day of death, which showed Streptococcus haemolyticus.

Histologic Observations and Diagnosis.—Dr. J. F. Fraser and Dr. Alexander Fraser made the histologic examinations on the biopsy sections.

A portion of the original tumor was excised on October 27. The specimen examined was a section of skin including a piece of subcutis. The corium showed a diffuse infiltration of reticular cells, together with reticulum fibrils infiltrating between the normal collagen fibers and gradually compressing and replacing them. There were a moderate number of mitoses. The infiltration had also invaded the fibro-adipose tissue of the subcutis. Most of the cells were of the large reticular type, but they were accompanied by a considerable number of smaller cells of a lymphocytic appearance which were probably the younger forms of the reticular cells. Collections of these reticular cells were also present in the epidermis, where they had replaced the epithelial cells.

Additional sections for biopsy were taken from the edge of the primary lesion and from new lesions on Dec. 13, 1931, and on Jan. 4, 1932. Examination of these sections revealed a picture similar to that found at the first biopsy.

A microscopic diagnosis of mycosis fungoides was made.

Autopsy.—The patient died from septicemia due to Streptococcus haemolyticus and terminal bilateral bronchopneumonia. There was no evidence of mycosis fungoides in any of the internal organs. Except for the observations previously reported, microscopic examinations of the tissues gave essentially negative results.

COMMENT

Many dermatologists saw this patient at a dermatologic meeting [1] soon after the development of the generalized eruption, and a few concurred in the clinical diagnosis of mycosis fungoides. Others suggested the following diagnoses: generalized sarcomatosis, generalized angiosarcoma and dermatitis medicamentosa. The patient was seen again three weeks and five weeks later at other meetings,[2] at which the diagnosis of mycosis fungoides was made unanimously.

Hallopeau [3] described in nearly all of his cases of mycosis fungoides a true initial or primary lesion which he called "the chancre of this disease," comparable to the primary lesion of syphilis. This lesion could remain isolated for one or two years, and it might either be a small, scaly, ulcerated or crusted spot or oval, red, soft or infiltrated plaques.

Iclaramunt [4] reported a case of mycosis fungoides in a man, 32 years of age, who had a small hazelnut-sized tumor on the right side of his chest of six months' duration. The tumor was completely excised, and the wound healed by primary intention. One year later there was no local recurrence or generalized manifestation.

Audrey [5] observed a man, aged 32, who for six months had a small tumor on his back. The tumor was characteristic of mycosis fungoides, clinically and histologically. Three years and nine months after the excision of the tumor the patient was in good health without local recurrences or generalized lesions. He concluded that "in mycosis fungoides with a solitary tumor appearing on healthy skin, that tumor represented the chancre stage of the disease, and that one could expect a cure if the primary lesion was excised early enough."

In the case reported in this paper the patient had a solitary tumor which developed on normal skin. Had a diagnosis of mycosis fungoides been made of the primary tumor early enough, one could have resorted to a more radical excision and followed this up with high voltage roentgen irradiation administered locally and to the regional lymph glands. Would the prognosis following such a procedure have been more favorable?

---

1. Eller, J. J.: Ulceration of the Wrist, Arch. Dermat. & Syph. **25**:1112 (June) 1932.

2. Price, G.: A Case for Diagnosis (Mycosis Fungoides?), Arch. Dermat. & Syph. **25**:1180 (June) 1932. Eller, J. J.: Ulceration of the Wrist, ibid. **26**:169 (July) 1932.

3. Hallopeau, H.: Traité pratique de dermatologie, Paris, J. B. Ballière et fils, 1900.

4. Iclaramunt, J. C.: Mycofongome initial, mycosis fungoide à tumeur d'emblée solitaire, Ann. de dermat. et syph. **6**:532, 1925.

5. Audrey, M. C.: Bull. Soc. franç. de dermat. et syph. **35**:432 (May) 1928.

Cases of mycosis fungoides which developed following an injury have been reported by Pringle,[6] McVeil, Murray and Atkinson[7] and Crocker.[8]

We have been unable to find any reference in the literature to a case of mycosis fungoides following an insect bite. It is possible that in our case the insect bite was coincidental with the development of the primary mycosis fungoides tumor.

CONCLUSION

A report is made of a case of mycosis fungoides with unusual features. There was a history of an insect bite and the development of a generalized eruption following surgical intervention.

---

6. Pringle, J. J.: Brit. J. Dermat. **26**:213, 1914.

7. McVeil, Murray and Atkinson: Glasgow Hosp. Rep. **1**:53, 1893.

8. Crocker, H. R.: Diseases of the Skin, Philadelphia, P. Blakiston's Son & Co., 1903, p. 1951.

NODULAR SUBEPIDERMAL FIBROSIS

HENRY E. MICHELSON, M.D.
MINNEAPOLIS

The cutaneous fibromas were divided by Unna [1] into two groups: the keloids and the simple fibromas. Keloids are relatively common, are well known clinically and differ from the fibromas chiefly in the fact that they recur on excision and are the result of a constitutional peculiarity of the entire cutaneous fibrous system. The simple fibromas, on the other hand, exclusive of the neurofibromas, are comparatively rare cutaneous growths. They are solitary or multiple, hard, fibrous, sessile tumors situated subepidermally, arising spontaneously or following slight, but insignificant trauma.

These small growths undoubtedly are observed more frequently than the scanty literature on the subject would indicate. Almost all of the standard dermatologic texts in English, German and French mention the condition, but they discuss it in only a few sentences.

For a number of years I have been interested in this subject, not because of its clinical importance, but because of the fact that a large number of specimens have been sent to Professor Bell of the Department of Pathology of the University of Minnesota, by physicians who had removed them because they were suspected of being malignant, most likely sarcomatous. Dr. Bell and his staff have diagnosed these specimens as subdermal or subepidermal fibrosis.

In this paper I wish to give an accurate account of the appearance and course of the cases of this condition that I have observed, and to describe the microscopic characteristics learned from the study of thirty-nine specimens examined histologically.

Three names have been proposed for this type of lesion: fibroma simplex or fibroma durum by Unna, noduli cutanei by Arning and Lewandowsky and subepidermal fibrosis by Dr. Bell.

The name proposed by Unna is quite acceptable except that to me, at least, it implies that the growths are fibrous tumors and not inflammatory in origin. My study of these sections, confirming Dr. Bell's opinion, seems to show definitely that these growths are the result of a productive inflammation.

Presidential address, read before the Chicago Dermatological Society, Union League Club, Chicago, May 25, 1932.

1. Unna, P. G.: The Histopathology of the Diseases of the Skin, translated by Walker, New York, The Macmillan Company, 1896, p. 836.

Noduli cutanei, the title under which Arning and Lewandowsky [2] described these lesions in the *Festschrift* for Boeck in 1911, is fairly descriptive, but it is not suggestive of the pathologic changes observed and has not been adopted to any great extent.

I offer nodular subepidermal fibrosis as an accurate name for the condition under discussion; it gives a clear insight into the underlying process. Nodular would indicate the size, and subepidermal, the situation, while fibrosis clearly implies that the origin is inflammatory, although, as is well known, it is extremely difficult to draw a clear distinction between certain true blastomas and inflammatory masses.

CLINICAL DESCRIPTION

The lesions arise insiduously. Sometimes the patient recalls some trivial injury which did not cause much of a break in the skin. Gradually an easily palpated, small node develops, which can be outlined from the surrounding tissue without any difficulty. There may be a certain discomfort, due mostly to the knowledge of the presence of the growth. The node is very hard almost from the beginning, just like a large shot buried superficially in the substance of the integument.

Most of the lesions that I have seen were situated in the anterior tibial region, but they also have been found on the extensor surfaces of the forearms, the legs, on the abdominal wall, over the back and even on the face. The extremities, however, harbor by far the majority of the lesions. Without doubt no part of the body is immune. The small, hard, pedunculated fibromas found on the tongue and lips are probably closely related growths. I have seen one patient who had subepidermal fibrotic lesions on the arms and many small, pedunculated, soft fibromas about the axillae.

The lesions vary somewhat in number, but in most patients one or only a few nodules are present. In one case there were about twenty nodes in all. Lesions of all ages and sizes were to be seen. The earliest lesion that this patient could point out was the size of a shot, apparently developing about a sebaceous follicle on the arm. The oldest lesion on the other hand was about 4 mm. in diameter and had a somewhat depressed center, but there was no history of a previous crust or scale that had become detached. The lesions had been present for about ten years, a few new ones appearing each year in precisely the same manner as the first one. In no patient whom I have interviewed was there a history of antecedent inflammation, suppuration or any etiologic factor of importance.

---

2. Arning, E., and Lewandowsky, F.: Noduli cutanei, eine bisher wenig beachtete Hautaffection, Arch. f. Dermat. u. Syph. **110**:3, 1911.

The lesions also vary somewhat in size (fig. 1). They are all small however, 1 cm. being about the maximum diameter, and 0.5 cm. the average. No large lesions have been seen, and in this respect they differ distinctly from keloids. They also differ from keloids in shape, since all of these small nodes are round or spherical in every instance, no odd-shaped or elongated lesions having been encountered. When the growths have attained their full size, they remain stationary.

Fig. 1.—Close view, showing size and type of lesion.

The color of the growths varies with the individual case and with the age of the lesion. Most of the nodes are some shade of red. The early ones are fairly pink, and as they grow older they become deep red, even brown, and a few, which had been present for a good many years, have been found to be ivory colored.

The surface is usually smooth, but not as smooth as in keloid. With a lens, follicles can sometimes be made out. No new vessels are to be found coursing over the surface as in keloid; neither does the surface have the transparent appearance of that of keloids. There is no scaling or crusting. In a few instances there is a slightly depressed center.

The lesions cause no symptoms. They are not tender like a keloid. They may be manipulated with impunity and do not even itch. Their presence is realized only when they are seen or palpated. Most of the nodes are somewhat elevated; they are sharply and easily demarcated from the surrounding tissue, and they do not extend into the hypoderm. They are not attached to the subcutaneous tissues; hence, they are freely movable, and may almost be picked up.

The lesions occasionally are reabsorbed, leaving a somewhat atrophic scar, but in almost all instances the growths attain their size and then remain stationary for years.

The age of the patient seems to have no bearing on their development as it does in keloid. I have seen them in patients of all ages, in children, in adults and even in patients of advanced years.

Treatment has never been urgent because of the symptoms. The patient or the physician wishes the growth removed because of suspicion or fear of cancer. Excision is final. The growths do not recur. I have not tried radiation. The condition is benign in every respect. No instance of change into a fibrosarcoma has been recorded, nor have these small nodes ever been the beginning of a dermatofibrosarcoma protuberans.

HISTOLOGY

The microscopic changes noted in subepidermal fibrosis are circumscribed changes of the connective tissue. There was a decided similarity between the various specimens examined. The differences seemed to be due to the age of the lesion, or to the stage of development when the excision was made.

The epidermis was not greatly altered in the majority of the sections; there was some degree of atrophy, but it was not marked except in one specimen, which was from a decidedly elevated and almost globular node (fig. 2). In one other case acanthosis of a verrucous type (fig. 3) was seen. Biberstein [3] has reported a somewhat similar condition, but the acanthosis he noted suggested an epitheliomatous tendency. Occasionally there was a mild degree of hyperkeratosis resulting in a few scales. The rete and papillae were usually preserved; if the fibrosis is close to the surface, the rete may be stretched to some extent, with a band of normal cutis between the epidermis and the growth.

The pilosebaceous apparatus was lost in the lesion proper. Under the lesion one could find, usually, the sweat coils pressed together and lying parallel to the surface; they were stretched out into thin, almost atrophic strands. The sebaceous glands also were missing in the lesion and frequently could not be found in the section. Hairs were rarely

3. Biberstein, Hans: Fibrome mit atypischer Epithelwucherung, Arch. f. Dermat. u. Syph. **164**:69, 1931.

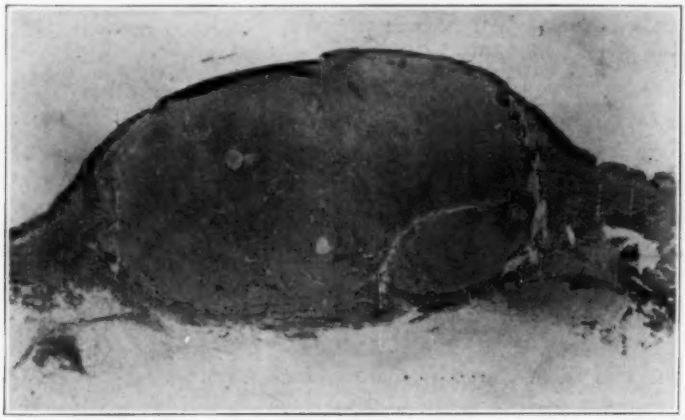

Fig. 2.—Photomicrograph, showing circumscribed lesion and its position.

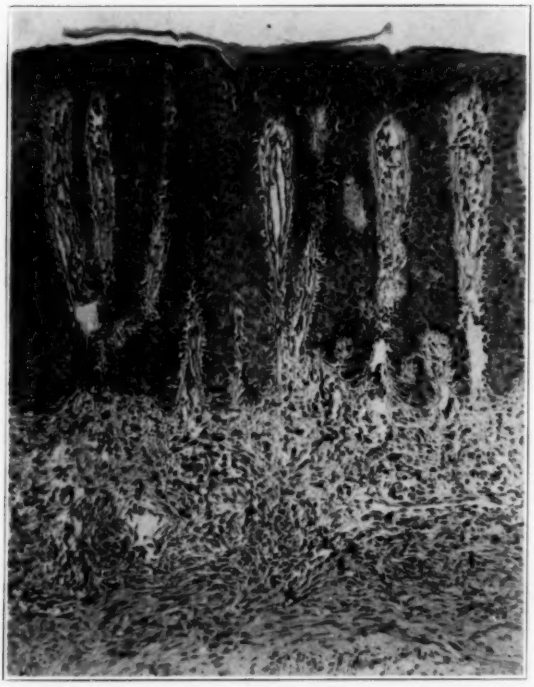

Fig. 3.—Photomicrograph, showing marked acanthosis, a rare finding.

seen in the region of the node. The lymph spaces were either much compressed or entirely lost. Here and there spaces were hollowed out into irregularly shaped cavities in the center of the fibrous mass. These cavities tended to be polygonal or stellate in shape. The blood vessels in the lesion proper were hard to find. The lumen was completely compressed, and the walls were very thin. On the other hand, the vessels at the periphery of the nodule were very much thickened and sclerosed. In fact, it has been suggested that the fibrous change begins in the adventitia of these deeper vessels. The elastic fibers (fig. 4) either were entirely lost in the lesion or appeared as just small pieces. There was a very sharp line of demarcation between the area in which elastic fibers

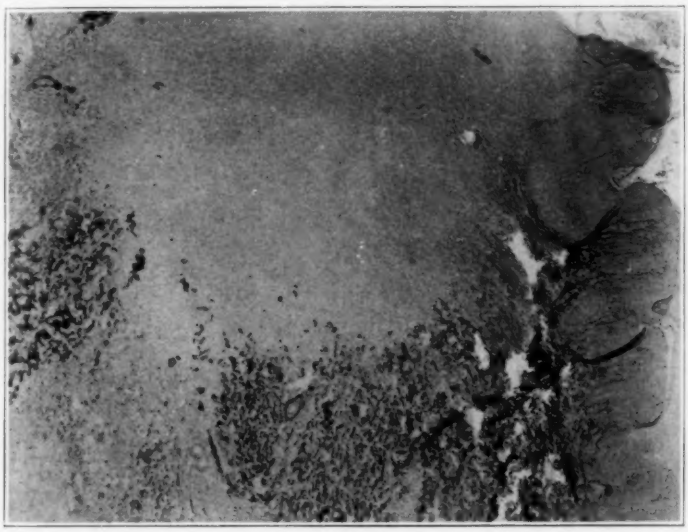

Fig. 4.—Photomicrograph, showing complete absence of elastic fibers in the lesion.

were absent and that in which they were present. There was no fibrous capsule around the node. At times the fibers were found, in the near vicinity, as small thickened comma-like pieces looking much like a section of pseudoxanthoma elastica.

The important microscopic changes are in the collagenous tissue. The bundles lose their normal form and arrangement. The individual strands are much thickened, run in wavy lines and have a homogeneous appearance. The nuclear elements vary greatly. Apparently in a rather recent lesion the number of connective tissue cells is greatly increased. In this type of lesion there is a decided fibrosarcomatous appearance (fig. 5), except that the lesion is sharply confined and not at all destructive. In other specimens there are practically no nuclei, the lesion being

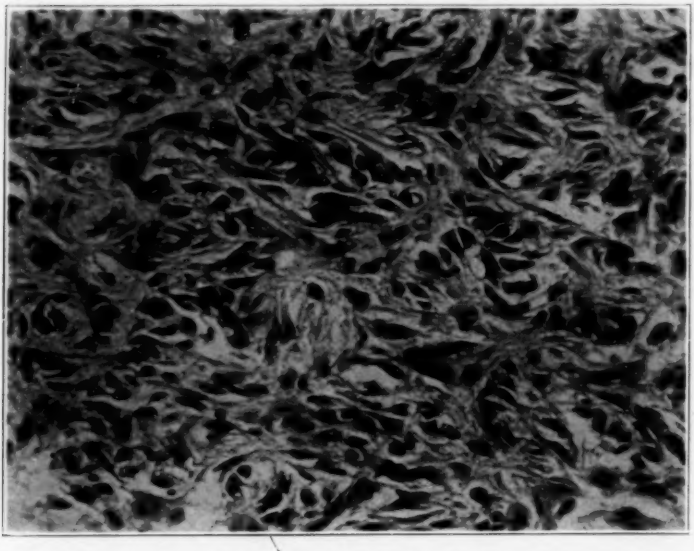

Fig. 5.—High power photomicrograph, showing stellate young connective tissue cells resembling fibrosarcoma.

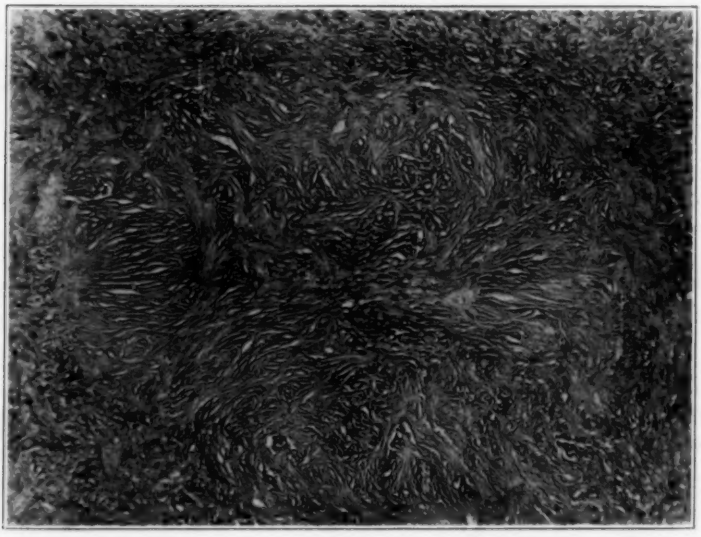

Fig. 6.—Center of a mature scarlike lesion.

made up of a clear homogeneized mass looking like a compact mature scar (fig. 6). The lesion occupies an intracutaneous position and never invades the subcutis.

Nerve elements have not been found in these little tumors, but special stains were not made for them in these studies. Varying amounts of inflammatory infiltrate were found in many of the microscopic preparations. In one section (fig. 7), a granuloma composed of many plasma cells, lymphocytes and polymorphonuclear cells was found at the periphery of the lesion. Lewandowsky reported a similar finding. Figure 7 was made from a comparatively fresh lesion. An older lesion from the same case showed more of a scar and no granuloma. Evidently in the

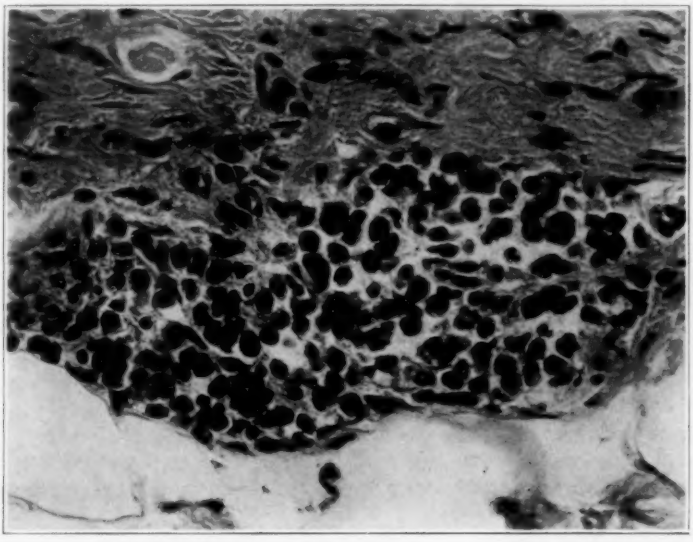

Fig. 7.—Photomicrograph, showing dense inflammatory infiltrate at the lower border of a lesion, composed of plasma cells, lymphocytes and polymorphonuclear cells.

early lesions there is an inflammatory deposit which gradually is replaced by a scar. One might state that the primary stage of these lesions is a subepidermal inflammation with fibrosis which eventually becomes a well circumscribed fibroma.

Are these small lesions true blastomas? This is a hard question, because the answer is dependent on the definition of a tumor that one employs. In the narrower sense of Borst,[4] I should not consider them tumors, because their existence is not as an independent autonomous overgrowth. Fibromas are evidently growths of connective tissue which, when they arrive at maturity, have gone through the various phases of

4. Borst, Max: Pathologische Histologie, Leipzig, F. C. W. Vogel, 1922, p. 268.

growth from embryonic to mature connective tissue. In many of the sections remnants of infiltrate were found, and the amount present was greater in new lesions, while the amount was greatly diminished or entirely absent in the sections of old lesions. One may then conjecture on the course of events. A rather simple explanation would be that the first step in the formation of these lesions is the production of an inflammatory infiltrate evoked by a very low grade excitant, which does not bring about suppuration or liquefaction but results in a productive scar formation that is similar histologically to keloid, but is different clinically, as has been pointed out. The precise pathogenesis is not known.

The relationship of simple fibromas to fibrosarcomas has not been explained as yet, for the transition from benignity to malignancy is a much involved problem, and without a doubt it is dependent on local and constitutional factors; likewise, the relationship of inflammation and new growths is one of the major problems in cancer research. Possibly the study of this type of growth would throw some light on these problems.

DISCUSSION

Dr. Oliver S. Ormsby: We are all much indebted to Dr. Michelson for his excellent paper on a subject which he stated was not very important, but which from our point of view is a problem of vast importance in some instances. The resemblance histologically to sarcoma leads to much anxiety when the case is studied by the general pathologist. These lesions are always benign, and in our experience they have been few, usually two or three. The common site is on the legs, where they occur as small, brownish, hard tumors. We have classed them for a number of years under the title of fibroma durum. We have found no method of treatment successful other than excision. Roentgen rays and carbon dioxide snow have been employed without much effect. We have seen no recurrence after excision.

Dr. Clark W. Finnerud: I wish to express my appreciation of Dr. Michelson's complete study of this condition, a disorder in which I have been interested for several years. I was interested particularly in the histologic aspects. In the half dozen cases of hard fibroma we have studied histologically, I have never seen the marked chronic inflammatory infiltrate which Dr. Michelson illustrated. I can excuse the general pathologist for making a diagnosis of fibrosarcoma, in that some of the lesions, despite the fact that they do not infiltrate the hypoderm, extend out laterally in anything but a circumscribed fashion.

Dr. S. W. Becker: I should like to know whether Dr. Michelson is familiar with the French work on this subject. I have never looked it up myself, but I know that the French have investigated this condition and have attached the name of Civatte to it, calling it fibrome en pastille.

Dr. Fred R. Schmidt: I have treated one or two patients with electrodesiccation, and I wonder whether Dr. Michelson has used that.

Dr. Michelson: No, I have not.

Dr. Michael H. Ebert: For years I had on my forearm a tumor of the type described. It disappeared spontaneously.

SARCOID

REPORT OF AN UNUSUAL CASE OF THE DISSEMINATE TYPE

FRANK C. COMBES, M.D.
NEW YORK

In the last few years the clinical conception of sarcoid has undergone considerable modification. An increasing number of cases have occurred in which the histologic picture has agreed in general with that described by Boeck,[1] although they have presented variable clinical pictures. The case which forms the basis of this report is unusual in its clinical manifestations. The patient was presented at a meeting of the New York Dermatological Society,[2] and the diagnosis of "disseminate sarcoid" was accepted without reservation. If sarcoid is to be considered a histologic concept, then there is no question regarding the diagnosis. A review of the literature has failed to reveal a similar case.

REPORT OF A CASE

History.—P. P., a Negress, aged 25, single, born in the United States, was first seen in the spring of 1931. Her general health had always been good. There was no history of tuberculosis in her immediate family. About three weeks previous to her first visit an intense pruritus had developed, which was followed in a few days by a generalized erythematous dermatitis. I was unable to make a definite diagnosis other than toxic erythema or a beginning exfoliative dermatitis of unknown etiology. The eruption involved the entire integument, with the exception of the head, feet and hands. There were many punctate and linear excoriations, particularly over the abdomen and on the extensor surfaces of the arms. Under the influence of soothing lotions, the inflammation subsided, but the pruritus persisted. Some superficial exfoliation of loosely adherent, branlike scales occurred. Simultaneously in the course of a few weeks, over a hundred infiltrations appeared over the trunk and extremities, with the exception of the palms and soles. They varied up to 10 cm. in diameter and coalesced in some areas to form large polycyclic plaques. The smaller lesions on the trunk tended to be oval with the long axes in the direction of the lines of cleavage of the skin. This was probably due to tension and lateral pressure, as the lesions on the chest and shoulders were irregularly circular. In some areas on the extensor surfaces of the arms, lesions had apparently developed in linear excoriations, such as are frequently seen in lichen planus and sometimes in psoriasis.

From the Dermatological Clinic of the University and Bellevue Hospital Medical College, service of Dr. Howard Fox.

1. Boeck, Cesare: Multiple Benign Sarcoid of the Skin, J. Cutan. Dis. **17**: 543 (Dec.) 1899.

2. Combes, F. C.: Sarcoid (Disseminate Type), Arch. Dermat. & Syph. **23**: 991 (May) 1931.

Examination.—The lesions were darker than the normal skin and were covered with a thick, gray, powdery scale. Each patch was slightly elevated and sharply defined and apparently extended through the entire thickness of the integument. The normal cutaneous surface markings were exaggerated, producing a lichenified appearance. The lesions were quite firm and showed no evidence of ulceration. In some of the older ones the centers were slightly depressed. Under the breasts, owing to maceration, they were flatter, and showed little infiltration. Many of them in this location had fused, forming large plaques with a smooth violaceous velvet-like surface.

Fig. 1.—Back of patient with disseminate sarcoid, showing distribution of the lesions.

Under pressure with a diascope, after some of the scale at the border of the lesions had been removed, one could see minute yellowish-brown puncta. In some instances it was possible to demonstrate similar lesions in the center of the plaques and nodules. There was no glandular enlargement, and, aside from the itching, the patient had no subjective symptoms.

During the subsequent period of observation, the itching subsided completely. The patient was given arsenious acid by mouth to the point of toleration. The scaling was ameliorated, and many of the lesions were flattened in the center. In some of them a definite, raised, scaly border remained, surrounding a dusky blue depressed center in which were a few telangiectases.

After a more or less stationary period of several months, the lesions all resolved, leaving dark pigmented areas, many of which showed cicatricial atrophy.

The duration of the condition from the onset of the initial pruritus covered a period of approximately nine months.

Histologic Examination.—One of the lesions on the back was removed and stained with hematoxylin and eosin for histologic study. Under low power magnification, it presented a thick laminated scale covering an irregular epidermis. In some places, there was a broadening of the epidermal pegs with an increased suprapapillary rete; in others, there was an elongation of the pegs with a corresponding

Fig. 2.—Low power photomicrograph, showing the diffuse fairly intense infiltration.

decrease in suprapapillary rete. A diffuse, fairly intense infiltration occupied the papillary and subpapillary regions of the corium with numerous small irregular spaces throughout, especially in the papillary body. In some areas there was a definite tendency toward limitation of the infiltration, especially in the upper part of the corium. The entire corium was edematous. There were numerous dilated vessels surrounded with a cuff of cellular infiltration.

Under high power magnification, the scale was seen to consist of both hyperkeratosis and parakeratosis. In many places the granular layer was absent. The rete showed both intracellular and intercellular edema. Many rete pegs were invaded by wandering cells from the underlying infiltrations. At one place the pegs

were nearly obliterated by the merging of epithelial and papillary structures. Numerous chromatophores were seen in the papillary body. The infiltration consisted mostly of epithelioid cells with a goodly number of lymphocytes, particularly at the edges. Occasionally a plasma cell and an eosinophil were noted. The blood vessels showed dilatation with a dense perivascular infiltration of small round cells. Several of the blood vessel walls were thickened, and the lumens of a few smaller capillaries were obliterated. A stain for elastic tissue showed it to be fragmented and clumped, particularly in the deeper part of the corium, where it took the methylene blue (methylthionine chloride, U. S. P.).

Laboratory Data.—The Wassermann test of the blood was negative. The Mantoux and Pirquet tuberculin tests were negative. The tuberculosis fixation test of the blood was negative. The results of roentgen examination of the chest and bones of the hands showed them to be normal. Cytologic examination of the blood gave normal results.

80 West Fortieth Street.

Biography

NOAH WORCESTER, A.M., M.D.

PIONEER INTERNIST AND DERMATOLOGIST IN THE MIDDLE WEST

WILLIAM ALLEN PUSEY, M.D.
CHICAGO

Noah Worcester represents one of those mute inglorious Miltons who deserve remembrance, but who, through some fickle turn of chance, have not had it. Worcester has a twofold claim to a place in the medical history of the Middle West and even of the nation. He brought to the Middle West the teachings in general medicine of the great French school of the first quarter of the nineteenth century and the methods of diagnosis of Laennec. He also brought to America the teachings of the famous French dermatologists of that period.

We have full knowledge through Worcester's writings of his capacity in dermatology. Unfortunately we have no such direct knowledge of his capacity in general medicine, but, judging by his knowledge of dermatology, he must have been a modern of the moderns in his knowledge of general medicine. He introduced in the West the spirit of Laennec; he taught the importance of pathology and of exact diagnosis, and he exemplified expert skill in the new methods of physical diagnosis. Worcester reminds one of Laennec. He was an alert man of intense intellectual activity; he was greatly interested in pathology and physical diagnosis; he had energy and enthusiasm which surmounted invalidism, and he had an appealing personality. Finally, like Laennec, his brilliant career was cut short in his prime by pulmonary tuberculosis; he died in his thirty-sixth year.

Dr. F. C. Waite, professor of pathology in Western Reserve University, who has been interested in Worcester and to whom I am indebted for much information about him, said in a personal communication to me: "When he (Worcester) returned to America he was considered, according to a written statement I have seen by some medical man in the East . . . the best trained man in auscultation and percussion in America."

Worcester's claim, however, to permanent remembrance in the history of medicine does not rest on his achievements in internal medicine, for in these fields he confined his work to teaching and practice, and

Read before the Chicago Society of Medical History, Dec. 16, 1932.

left no written record. He was, however, also interested in skin diseases, and here he had a claim to a permanent place in the annals of dermatology, for he wrote *the first work in America on skin diseases.* It was thirty years before any other American book on skin diseases appeared. He also taught dermatology in the Medical College of Ohio at Cincinnati and in the Western Reserve College at Cleveland, twenty years before J. C. White gave a course of six lectures at the Harvard Medical School, in 1863, which is usually regarded as the first course on skin diseases given in any college in the United States. Worcester was contemporary with H. D. Bulkley of New York, who lectured on skin diseases at the Broome Street Infirmary in 1837, and gave a course on skin diseases in the spring course of the College of Physicians and Surgeons in New York in 1841. Bulkley was twenty years ahead of his time. These two, one in New York and the other in Cincinnati and Cleveland, were the pioneer dermatologists of the United States. Bulkley's name is preserved; Worcester's has been almost forgotten. I know of no reference to him in dermatologic literature except in Ravogli's [1] article on the history of dermatology which simply referred to the fact that Worcester studied in Paris and wrote the first American book on skin diseases. Even Garrison did not mention him. Only Kelly and Burrage, in their "American Medical Biographies," did not overlook him, and there are a few lines about him in Huettner's "Daniel Drake and His Followers." Kelly and Burrage gave an accurate, brief sketch of his career and referred to the fact that "for a year or two he lectured on diseases of the skin" at Cleveland.

Although most of his practice was done in Cincinnati, the records of him are preserved in Cleveland, where he taught from 1842 to 1847. I am indebted for the facts of his life to William T. Corlett, professor emeritus of dermatology, and to F. C. Waite, professor of histology and embryology, in Western Reserve University. Dr. Corlett gave me the opportunity of examining his copy of the first edition of Worcester's "Diseases of the Skin," and Dr. Waite gave me not only facts concerning Worcester, but a transcript of an "Introductory Address on the Life and Character of the Late Prof. Noah Worcester, M.D., Western Reserve College, Cleveland, Nov. 3, 1847, by Jacob J. Dalamater, M.D., Prof. of Anat. and Physiology, Western Reserve College." The manuscript of this is in the Hatch Library of Western Reserve University. It was published by the medical class of the college of 1847, in a pamphlet which is excessively rare. The only copy that I know of was put at my disposal by Dr. Irving S. Cutter of Chicago. This address is almost the only source of the facts of Worcester's life, and it is equally informative in showing the affection and admiration which, in

1. Ravogli: M. Life **33**:492, 1926.

a short time, Worcester aroused in Dr. Dalamater and his other colleagues in Cleveland. It is a glowing tribute to him.

The story of Worcester is that of so many men in medicine who have reached distinction. His medical education was obtained under difficulties, but, once gained, he rose rapidly by sheer ability and energy to professional and public recognition. The only difference from the usual story of this sort is that he had a good preliminary education.

The critical dates of his life are these: He was born on July 29, 1812, took his Bachelor of Arts degree at Harvard in 1832 and his medical degree at Dartmouth in 1838, spent the year 1841 in Europe, married in the winter of 1841-1842 and died in 1847. He was the son of a school teacher, a man who evidently had education and ability, and who conducted successfully several private schools in New England. Worcester was born at Thornton, N. H., and spent his childhood in New England villages, completing his primary education at Exeter Academy, N. H. At the age of 15, in 1827, he went to Harvard, where he graduated in 1832 at the age of 20. Up to the time of his going to college his father had been prosperous. Then by the familiar old process of indorsing notes for others he lost his estate, and young Worcester, by his sophomore year, found himself confronted with the necessity of self-support. This he obtained by teaching at Gloucester and Londonderry, N. H. After his graduation, in 1832, he became principal of the academy at Peacham, Vt., and during the next two or three years attained local distinction as a teacher and lecturer on scientific subjects. While at Peacham he attracted the attention of Dr. Reuben Diamons Mussey, who was professor of theory and practice of medicine at Dartmouth Medical School and the outstanding physician in his part of New England. Mussey, although much older, became his close friend, and they maintained confidential relations until Worcester's death. In the fall of 1838, Mussey was called to the chair of surgery in the Medical College of Ohio at Cincinnati, and Worcester went there with him. Worcester must have quickly found a practice in Cincinnati, for by 1841 he was in a position to go to Europe for further study. His particular ambition in going to Europe was to become better grounded in pathology and in the new art of physical diagnosis of the chest introduced by Laennec. He had already learned French. He remained in Paris eight months. He pursued the course which he had outlined for himself, but he added to his interests the study of skin diseases. St. Louis Hospital was then the world's great center of dermatologic teaching and research. During all of his eight months in Paris, Worcester seems to have given part of his time to the study of skin diseases under the great masters of St. Louis Hospital. From Paris he went to London, where he spent a few weeks.

He returned to the United States in the fall of 1841 or early in 1842. He went to Peacham, Vt., and married Miss Jane Shedd, to whom he had been engaged since his teaching days in Peacham, and returned to Cincinnati early in 1842. He went back to his office with Dr. Mussey, and in the college year 1842-1843 (i. e., the first year after his return), he was professor of physical diagnosis and pathology of the Medical College of Ohio. The next year, 1843, on the founding of the medical

Fig. 1.—Bust of Noah Worcester.

department of Western Reserve College at Cleveland, he was called to the chair of general pathology, physical diagnosis and diseases of the skin. This fact testifies to his outstanding position. He held this professorship until his death in 1847, and gave a course on skin diseases for four successive years. Although he practiced in Cleveland while teaching there, except during these months of teaching he continued his large practice in Cincinnati.

In the meantime, his wife had become ill with pulmonary tuberculosis and died. Soon after that he manifested evidence of pulmonary

tuberculosis, which, contrary to the common views at that time, Worcester regarded as infectious. But this did not prevent him from carrying on his professional work energetically; during the years 1843 and 1844 he must have written his "Diseases of the Skin" while he was suffering from active tuberculosis. He died in Cincinnati on April 4, 1847. The loss which was felt at his death and the regard which was held for his character are shown by the handsome address of Dalamater and the rather extraordinary fact that after his death Worcester was honored by a bronze bust which was placed in the medical school in Cleveland; it was said to be a good likeness, and is the only portrait of him that is known to exist (fig. 1).

A

SYNOPSIS

OF THE

SYMPTOMS, DIAGNOSIS AND TREATMENT

OF THE MORE COMMON AND IMPORTANT

DISEASES OF THE SKIN.

WITH

SIXTY COLORED FIGURES.

BY N. WORCESTER, M. D.,

PROFESSOR OF PHYSICAL DIAGNOSIS AND GENERAL PATHOLOGY, IN THE MEDICAL SCHOOL OF CLEVELAND, LATE PROFESSOR IN THE MEDICAL COLLEGE OF OHIO.

PHILADELPHIA:
THOMAS COWPERTHWAIT & CO.
BOSTON, CHARLES C. LITTLE AND JAMES BROWN.
CINCINNATI, DESILVER & BURR.
1845.

Fig. 2.—Title page of Worcester's "Diseases of the Skin."

After I had written what I thought was the last draft of this paper I had referred to me for review "Life's Adventure," an autobiography by Elwood Worcester, a New England minister of many-sided ability, the founder of the Emanuel movement. It turned out rather curiously that his father and Noah Worcester were brothers. He gave full information about the Worcester family, and an account of Noah Worcester's early life somewhat different from that shown in the records that I have. The first of the family to come to this country was Rev. William Worcester, in 1639. The family has had many able representatives, including many ministers and a few physicians.

There were two editions of Worcester's "Diseases of the Skin," the first appearing in 1845 and the second in 1850, after his death (really two printings). Copies are rare. The title page of the first edition is shown in figure 2. The book is a large octavo, 6¼ by 9⅝ inches in size, with exactly three hundred pages, including 8 pages containing sixty-two colored illustrations which are placed together at the back of the book. These are admittedly reproductions from European atlases, from Bateman to Wilson, and are as good as the usual colored illustrations of the times. The plates were probably made in Europe. The publishers have done a good job, and the format of the book as a whole is excellent. There is nothing in the work either of the publishers or of the author that is amateurish. From a literary standpoint the work will bear a fair comparison with any book on skin diseases that I know. The descriptions are clear, sharp and accurate; they have nothing of the indefiniteness that indicates ignorance or confusion. Worcester acknowledged his indebtedness to the great dermatologists of his and the preceding generation, Willan, Bateman, Alibert, Cazenave, Schedel, Plumbe, Thompson, Rayer, Wilson, Gibert, Ricord and Baumes, but his book is no mere compilation. It shows a first hand knowledge of cutaneous diseases, and is particularly marked by the rational way in which he considered these diseases from the standpoint of their pathology. Many of his comments on the etiology of skin diseases, the importance of diagnosis and of rational therapeutics based on diagnosis and the direct appreciation of the pathologic processes in skin diseases are modern. Illustrations are as follows:

Causes: While we are able generally to state many circumstances which are found upon extended observation to increase the number of cutaneous eruptions, we are frequently unable in an individual case to point out the proximate cause of the affection. An attempt has been made in this manual, often very unsatisfactory to be sure, to give the more frequent causes of each disease after its description; a few remarks as to the general causes might not be out of place here.

Willan attributed the frequency of cutaneous diseases in England to the want of public baths and proper attention to cleanliness; and these causes operate with

still greater force in the United States; and of all the prolific causes of cutaneous disease this is unquestionably the most important in this country.

Several cutaneous diseases are distinctly hereditary in their character. . . .

A few cutaneous eruptions are distinctly contagious, though in most instances where a number of cases of the same disease occur in the same family, we are not to attribute it so much to contagion, as to the same causes affecting all the members of the same family. . . .

Instances in which some affection of the skin is excited by an article of diet which is wholesome to most individuals are very numerous; and indeed it is usually by this class of diseases that such idiosyncrasies are manifested.

The natural texture of the skin, the occupation of the individual, his age, temperament, etc., have also a great influence in modifying these affections.

Note this especially:

Let the pathological nature of the cutaneous diseases be carefully studied and remedies applied as experience and reason would dictate in similar diseases of other organs, and much less complaint will be heard of their obstinacy.

Many similar quotations could be copied from Worcester's book if space permitted. A good illustration of his acumen and of his straightforwardness of mind will be found in his description of that very definite disease, scabies, the etiology of which, however, at that time was still confused in the minds of the leaders of dermatology:

Scabies: This disease . . . is characterized by small, distinct, acuminate, transparent vesicles, containing a viscous serum, appearing at first where the skin is fine and delicate, between the fingers, subsequently upon the wrists, upon the flexor surface of the forearm, at the bend of the elbow, and eventually it may attack the whole body. It is eminently a contagious disease, and all the accounts of its prevailing epidemically, of its springing up spontaneously, and of the severe general symptoms arising from its sudden repression, are to be taken with great caution. It is now known to be caused by an Acarus which can always be found in genuine Scabies. . . . By examining the vesicles of Scabies with great care, unless the animal has been previously killed, there will be found here and there a vesicle, either between the fingers or upon the wrist, or arm, to which a line or handle has been added, from two lines to half an inch in length, at the extremity of which, at the greatest distance from the vesicles, the animal may always be found, and easily extracted by elevating the cuticle with a needle. The animal is never found in the vesicle, but from his inability to retreat, at the end of the sulcus.

Then, concerning the etiology, he stated:

The essential cause of Scabies is the presence of the Acarus; still, the young and delicate, with lymphatic temperaments, are more exposed to it than the robust and plethoric—females more than males. . . . The diagnosis, in most cases, is not difficult; the Sulcus, or Cuniculus, is found in no other cutaneous affection.

Concerning treatment he said:

The treatment of Scabies does not usually present much difficulty; Sulphur has been found so efficacious in this disease, that it seems to be the only article in

the Materia Medica deserving the name of specific for any disease. It is said to act by being eliminated from the skin in the form of Sulphureted Hydrogen, which gas is very poisonous to the Acarus, while the Sulphur itself is not.

Later, concerning scabies, he referred to rigorous methods of treatment, and then made this practical comment, which is equally applicable to vigorous methods of treatment which are now sometimes used: "In private practice, patients would not submit to such a course of treatment; by less active treatment, a cure can usually be effected in about two weeks."

His treatment of scabies is a good illustration of the dermatologic intelligence of the author, but many other equally good illustrations of his intelligent conception of skin diseases could be given.

Of course, Worcester did not always rise beyond the knowledge of his times, and many quotations could be produced which would show the great increase in the knowledge of dermatology since his day. But the book throughout is characterized by intelligence and reason. When one compares it with much of what passed for literature on skin diseases at that time—ninety years ago—its consideration of dermatology from a pathologic standpoint, its freedom from the influence of doctrinal hypotheses and speculations and its distinctly scientific factual attitude are notable.

It is interesting to speculate why Worcester's work has been so completely lost to dermatology. Even though it had two editions, it must have had a small circulation, or copies of it would not be so rare; translations of works of standard European dermatologists of the times are not uncommon. It is probable that, although the book was published in the East, bearing the imprint of well known firms in Philadelphia and Boston, as well as of one in Cincinnati, members of the medical profession hardly expected any important book on medicine to come at that time out of the frontier city of Cincinnati. Physicians were not looking for medical knowledge in that direction, and they preferred to take their dermatology from Cazenave, Schedel, Wilson and the well known men in Europe.

Worcester was an agreeable and personable man who gathered and held friends; he was intellectual, energetic and ambitious, an able physician and a courageous soul who, even in the face of impending death, did not falter. The conditions under which he wrote his "Diseases of the Skin" remind one of those under which Robert Louis Stevenson and John Richard Green completed their last writings. He was a credit to the medical profession, and a pioneer, almost *the* pioneer in American dermatology. He should not be forgotten.

Correspondence

"HYPERSENSITIVITY TO MERCUROCHROME SHOWN BY THE PATCH TEST"

To the Editor:—In their paper entitled "Hypersensitivity to Mercurochrome Shown by the Patch Test" (ARCH. DERMAT. & SYPH. **27**:408 [March] 1933) Drs. Pascher and Silverberg make mention of a few cases in the literature on dermatitis attributed to mercurochrome-220 soluble. In this connection they refer to a paper of mine (*Canad. M. A. J.* **24**:272, 1931).

I wish to point out that my paper did not deal with dermatitis produced locally by contact with mercurochrome. The title of the paper was "Mercurialism from the External Use of Mercurochrome-220 Soluble." The case I described was one in which mercurialism developed in the patient, a new-born infant, by the absorption of 4 per cent mercurochrome applied for twelve days over a considerable area of the neck and upper part of the thorax. The classic symptoms of stomatitis, gastro-enteritis and renal irritation were present, and while a scarlatiniform eruption did appear after the other symptoms had developed, the parts to which mercurochrome had been applied were the last to show any dermatitis.

D. E. H. CLEVELAND, M.D., Vancouver, Canada.

Abstracts from Current Literature

EDITED BY DR. HERBERT RATTNER

TOXICITY AND PHYSICAL PROPERTIES OF NEOARSPHENAMINE OF DIFFERENT MANUFACTURE. J. F. SCHAMBERG and J. A. KOLMER, J. A. M. A. **100**:180 (Jan. 21) 1933.

The authors make a plea for the establishment of a laboratory test to determine the curative activity of neoarsphenamine, in addition to tests to determine its toxicity and physical properties. In a comparative study of eighteen lots of neoarsphenamine prepared by seven laboratories, they found that five samples had a toxicity greater than that permitted by the National Institute of Health. In fourteen of the lots, there was agreement in the results of the trypanocidal and spirocheticidal tests; two lots were low in trypanocidal activity but up to the average in spirocheticidal activity, and two were low in spirocheticidal activity but up to the average in trypanocidal activity. Because of the fairly general agreement of the two tests, trypanocidal tests are worthy of further use, for they are quickly and cheaply done. However, in spite of the fact that about four months are required to obtain final results in the spirocheticidal tests, these tests should be done on a fair percentage of lots of neoarsphenamine as a check on their curative effect on syphilis.

ALOPECIA OF THE BEARD FOLLOWING PHRENICECTOMY. F. A. KENNEDY, J. A. M. A. **100**:257 (Jan. 28) 1933.

The author describes a case in which a patch of alopecia areata on the right side of the jaw developed in a man one week following a right phrenicectomy, which also produced a Horner's syndrome or sympathetic ophthalmoplegia.

ACCIDENTAL TRANSMISSION OF SYPHILIS BY BLOOD TRANSFUSION. C. D. POST and G. C. COONEY, J. A. M. A. **100**:258 (Jan. 28) 1933.

A case is described in which a secondary syphilitic rash developed in a girl 14 years of age after she had received a transfusion with blood obtained from her brother. According to the donor, the chancre was not present at the time of transfusion, but appeared four or five days later.

USE OF HISTAMINE IN THE TREATMENT OF PRURITUS. A. C. ERNSTENE and B. M. BANKS, J. A. M. A. **100**:328 (Feb. 4) 1933.

Histamine was injected subcutaneously in doses of 0.5 mg. twice daily in six patients with urticaria, in three with pruritus ani, in one with pruritus vulvae, in one with kraurosis vulvae and in two with pruritus due to indefinite dermatitis. The results were inconclusive, for while relief was rapidly obtained in some cases, in several the itching recurred and was not affected by additional treatment.

RADIUM THERAPY IN CARCINOMA OF THE LIP. E. KELLY, J. A. M. A. **100**:389 (Feb. 11) 1933.

This is an analysis of the records of 535 patients suffering from carcinoma of the lip. In early cases in which less than one half of the lip is involved with no palpable glandular enlargement, the author prefers radium therapy and has obtained excellent results with it. In more extensive cases without glandular enlargement, local radium therapy was supplemented by radical surgical dissection of the glands of the neck. In cases with definite glandular enlargement, the

author believes that the combined treatment should be used, if possible, but in inoperable cases it may often be necessary to use radium implants or deep roentgen therapy.

CARO, Chicago.

PREVENTION OF CANCER OF THE SKIN AND BUCCAL CAVITY. E. H. MOLESWORTH, M. J. Australia **2**:196 (Aug. 13) 1932.

The author's experience in Australia has led him to conclude that the greatest predisposing factor in the causation of cancer of the skin is prolonged exposure to the rays of the sun. A certain number of carcinomas arise spontaneously, perhaps from cell rests; some are the result of chronic irritation of simple benign lesions or scars, and others are occupational cancers caused by irritation by tars and similar substances. Single acts of trauma are frequently blamed, but at most they are merely the precipitating factors; irritation from the sun accounts for most cases, even those of cancer of the lip. Usually it is the exposed portion of the lip that is the site of an epithelioma, rarely the internal surface, and practically never the mucous membrane of the upper lip. The theory of sunburn provides a satisfactory explanation for this, because the upper lip is much better shaded than the lower one. The smooth, cool stems on modern smoking pipes cause practically no trouble to the lips of persons who work indoors unless their pastimes expose them a great deal to the sun. In regard to cancer of the buccal cavity, one cannot feel so sure of the innocence of tobacco smoke. Leukoplakia not infrequently occurs in the mouths of smokers. Some cancers are due to rough teeth, chronic inflammatory conditions and ill fitting dentures, but by far the most important factor in the production of cancer in the mouth is late syphilis. In the author's experience, from 20 to 30 per cent of cancers of the mouth occur in persons with late syphilis of the mouth. In order to help prevent oral cancer, therefore, one must employ adequate oral hygiene, and patients with syphilis should receive thorough treatment when seen in the early stage. In regard to cancer of the skin, persons must be warned against overexposure to the rays of the sun even in youth, and the custom of going without hats should be condemned.

RATTNER, Chicago.

SERUM REACTION OF SCIARRA IN THE DIAGNOSIS, PROGNOSIS AND TREATMENT OF SYPHILIS. R. J. WEISSENBACH and J. MARTINEAU, Ann. de dermat. et syph. **3**:593 (July) 1932.

In an effort to appraise the value of the serum reaction for syphilis proposed by Sciarra, the authors undertook a study of this new test, comparing it with the well known Wassermann, Hecht and Desmoulières tests as used in France today. Five hundred and ninety serologic examinations were made of four hundred and thirty-one subjects, both syphilitic and nonsyphilitic, the former representing all stages of the disease. The data are tabulated and discussed in considerable detail. A correlation of their results with clinical facts forces the authors to conclude that the reaction of Sciarra is inferior to the other three tests either as a diagnostic or prognostic aid or as a guide to treatment.

THE PATHOGENESIS OF CARCINOMA OF LUPUS ERYTHEMATOSUS ORIGIN. A. M. TISCHNENKO, Ann. de dermat. et syph. **3**:708 (Aug.) 1932.

That the pathologic alteration of the skin characterizing lupus erythematosus constitutes a favorable soil for the development of carcinoma is a well known fact. Tischnenko, from a study of four cases of his own and twelve cases reported by others, although recognizing the part played by the susceptibility of the organism, was led to the conclusion that the most important predisposing factor is external irritation, which too often takes the form of irrational therapeutic attack, notably with roentgen rays. He cautions against their use in this disorder.

ATYPICAL TUBERCULOUS ULCERS; TUBERCULOUS ULCERS OF THE SCALP. L. M. PAUTRIER, Ann. de dermat. et syph. **3**:785 (Sept.) 1932.

Tuberculous ulcers of typical character, occurring as they do almost exclusively in the mucous membrane or about mucocutaneous junctions, seldom occasion much difficulty in diagnosis. But ulcers developing on the cutaneous surface and presenting atypical features may not suggest tuberculosis at all. Pautrier reports the case of a man with two ulcers of the scalp, in which the possibility of tuberculosis was not considered for some time, the true nature of the lesions being finally revealed by the inoculation of animals and by careful histologic study. Even the microscopic picture was far from typical. To the author's knowledge, tuberculous ulcers in this location have never before been reported. The facts of this case prove that from both a clinical and a histologic point of view atypical tuberculous ulcers show a variety and complexity much greater than has heretofore been thought.

NODULAR ENLARGEMENT OF THE ARTICULATIONS OF THE FINGERS; THEIR FREQUENCY IN CONGENITAL SYPHILIS. R. HISSARD, Ann. de dermat. et syph. **3**:806 (Sept.) 1932.

For two years Hissard has been finding a deformity of the fingers accompanying congenital syphilis with sufficient frequency to raise the question of its significance in that disease. Nineteen examples of articular dystrophy are recorded in the form of case reports; in twelve of the cases, congenital syphilis was proved; in six, it was probably present.

The deformity involves the joints of the fingers and occurs in two forms: the nodular form, which consists of an enlargement of the articulation such that an appearance of bunching or humping is imparted to the first phalanx; and the globular form. In some subjects, all the articulations are more or less deformed, save those of the thumb; in others, certain fingers may escape. In some cases, the fifth digit presents the anomaly known as the camptodactylia of Landouzy (permanent and irreducible inflexibility of the finger).

All these malformations are painless. Although normal movements are not impaired (except in camptodactylia), they appear to be awkward. Roentgenograms have revealed no bony deformity.

What is the pathogenesis of this disorder, and how should this group of deformities be classified? Should it be regarded as an attenuated form of the chronic, deforming rheumatism so often found in the young in congenital syphilis? The author does not think so for the following reason: The latter disease frequently begins with constitutional symptoms, the joints are painful, there is roentgenologic evidence of bony changes, and the rheumatism is polyarticular. The dystrophy of the fingers accompanying congenital syphilis, on the other hand, is characterized by insidiousness, indolence, absence of roentgenologic signs and mono-articular involvement.

Could the articular dystrophy be gonococcic in origin? Several of the author's patients have presented no evidence to support this view.

The possibility of fibrous rheumatism is suggested, but it would be difficult to accept this hypothesis without anatomic proof and in the absence of painful phenomena.

In two of the author's cases, large hands and feet and other acromegalic stigmas accompanied the deformities of the fingers. This suggests an endocrine factor, the exact influence of which will have to be determined by wider experience and further study.

If syphilis is to be considered as the etiologic factor, what is the mechanism in the production of these deformities? It is the author's opinion that syphilis acts indirectly through the intermediation of the endocrine glands. This is suggested by the inefficacy of antisyphilitic treatment in making any impression on the lesions.

The discussion is concluded with the statement that, although syphilis may not be the sole cause of this dystrophy, it is certainly the most frequent cause.

GANDY, Houston, Texas.

INFANTILE HIRSUTISM TREATED BY ROENTGENOTHERAPY. MAHAR and FALCOZ, Bull. et mém. Soc. de radiol. méd. de France **18**:314 (July) 1930.

Mahar and Falcoz present a case of infantile hirsutism due to hyperplasia of the suprarenal glands following mumps. The condition was treated by roentgen therapy, with improvement. At the age of 7 the child contracted mumps. This was of a rather benign course. Shortly after the healing of the mumps there was a rapid increase in weight, and the entire body became covered with coarse, stiff, black hairs, more marked on the back, extremities, upper lip and chin. During the same time the child showed signs of advanced maturity. Two years later mixed organotherapy (thyroid, pituitary) was instituted, but without much result. At the age of 10, the patient had an abundant growth of black hair distributed over practically the entire body, with a mustache and beard. There was no pathologic pigmentation, and on palpation there was no evidence of an abdominal or lumbar tumor. The basal metabolism was minus 16. Roentgenograms of the skeleton failed to reveal any pathologic changes. A diagnosis of hirsutism was made (a term first used by Apert for the designation of a syndrome of obesity and hypertrichosis). It was assumed that the condition was the result of inflammatory changes of the suprarenal glands following mumps. The application of roentgen rays with medium voltage (22 cm. spark gap, with 0.2 mm. copper and 1 mm. aluminum filters) over both suprarenal glands led to remarkable improvement. The treatment was started on Feb. 24, 1930, the dose amounting to 300 roentgens, given alternatingly over each suprarenal region for a total of six exposures. The series was repeated two months later. The fall of hair commenced shortly after the first treatment and continued for several months. It is noteworthy, however, that the weight, size and arterial pressure remained uninfluenced by the irradiation. It is difficult to give a satisfactory interpretation of this partial result.

LEUCUTIA. [AM. J. ROENTGENOL.]

NEW RESEARCH ON ALLERGY TO EGG ALBUMIN IN INFANTS. PIERRE WORINGER, Bull. Soc. de pédiat. de Paris **30**:419 (June 21) 1932.

The author reports the results of his studies in thirty-seven cases of allergy to ovalbumin in infants ranging in age from 2 months to over 2 years. The incidence found in the children's clinic in which this condition was studied was six in a thousand. The author never obtained a positive intradermal reaction to egg albumin in an infant with normal skin. All the infants with positive reactions had eczema. Fifty per cent of the infants with eczema at some time had positive intradermal reactions. Twenty-three were boys and fourteen were girls. Twenty-two had specific antibodies in the blood; these patients are termed "holo-allergic"; eleven who had positive intradermal reactions had no specific antibodies in their blood; these are called "dermo-allergic." Only the holo-allergic infants showed a generalized reaction after taking egg albumin. No relation was found between the amount of antibodies in the blood and the severity of the eczema. Injections of egg albumin raised the titer of antibodies in the blood rapidly and did not desensitize the infants. Injections of egg albumin into normal infants did not produce allergy, nor did they produce the same specific antibodies in the blood as those which were found in the holo-allergic group; such injections produced different antibodies, which could be differentiated by means of the complement-fixation reaction. These nonspecific antibodies could be produced in dermo-allergic infants by injections of egg albumin. Dermo-allergy seems to be less stable than holo-allergy, since three of the infants tested intradermally reacted negatively after having shown repeatedly positive reactions, whereas none in the holo-allergic group lost their sensitization as determined by the intradermal reaction.

BENJAMIN, Montreal, Canada. [AM. J. DIS. CHILD.]

TUMOR-LIKE MASSES ON THE GUMS (FIBROMATOSIS GINGIVAE AND GINGIVITIS HYPERTROPHICA). A. MATRAS, Arch. f. Dermat. u. Syph. **165**:565, 1932.

Two cases of a peculiar fibromatous growth of the gingival and subgingival connective tissue are described. The process began in infancy, producing a massive thickening of the gums in both jaws, almost completely hiding the teeth. This condition, fibromatosis gingivae, which is hereditary, must be differentiated from gingivitis hypertrophica. The latter growth is formed as a result of an inflammatory process, whereas the etiology of the former is unknown.

IMMUNE REACTIONS IN HUMAN AND ANIMAL OIDIOMYCOSIS OF THE SKIN. H. BIBERSTEIN and S. EPSTEIN, Arch. f. Dermat. u. Syph. **165**:716, 1932.

A positive complement-fixation reaction was obtained in about half of the patients with definite oidiomycosis. In doubtful cases one fourth reacted positively. Of normal controls, 3.5 per cent gave positive reactions. Intradermal reactions were as a rule more severe in diseased patients than in normal controls. It was impossible, however, to find a concentration which produced a reaction in patients and not in a considerable number of controls.

In two of nine guinea-pigs, percutaneous inoculation produced a positive complement-fixation reaction. Intracutaneous inoculations produced positive reactions. Positive intradermal reactions could be produced in most cases. Complement-fixation and intradermal reactions do not always correspond. Previous treatment intracardially and intracutaneously produced no immunity against subsequent cardial infection. In guinea-pigs succumbing to a large dose given intracardially, the organisms were regularly found in the brain.

SENSITIZATION BY ORTHOFORM; ALSO NOTE ON THE QUESTION OF SENSITIZATION OF CONTROLS BY PASSIVE TRANSFER. J. KONRAD, Arch. f. Dermat. u. Syph. **165**:766, 1932.

As a result of the long continued use of a 5 per cent orthoform salve on the same area a deep necrosis formed. At the same time the patient became generally hypersensitive, with an eczematous reaction. A number of patients treated in the same area with 5 per cent and 10 per cent orthoform ointments for a long time eventually became sensitized, in some cases not only locally but generally. Passive transfer resulting in an eczematous reaction was obtained by the blister method of Königstein-Urbach but not with the Prausnitz-Küstner method in which blood serum is used. The author warns of the possibility of sensitizing controls in this way.

MONASH, New York.

SKIN NEVI AS A SOURCE OF ANTHROPOLOGIC KNOWLEDGE. F. ŠAMBERGER, Dermat. Wchnschr. **96**:45 (Jan. 14) 1933.

Šamberger reviews Šulc's studies on the nature and origin of two abnormal formations of the human skin, the lentigines and vascular moles. According to this author, the lentigines of human beings are remains of tactile organs, which in earlier developmental stages had the form of strongly pigmented warts with tactile hairs, and he considers the vascular nevi as increased sinuses that are the remains of former tactile hairs. He describes and discusses naevus acanthosiformis. Histologic examination of this form of nevus convinced him that it is an atavistic formation dating back to the period of phylogenic development when the skin served as a respiratory organ; that is, to the amphibious stage. He considers the observation of Šikl, who found mucus-secreting glands in cutaneous neoplasms a proof of the amphibious ancestry of human beings. He points out that in members of the white race there occur nevi with and without hairs, while hairy nevi do not occur in Negroes. He thinks that the skin of the white race developed from the skin of the amphibians by way of a land-inhabiting species with hairy skin. Negroes are free from hairy nevi because in the phylogenesis only one type of skin, that of the amphibians, is present.

THE CURE OF IMPETIGO HERPETIFORMIS OF HEBRA BY BLOOD TRANSFUSION. PROKOPTSCHUK and BARANOWSKY, Dermat. Wchnschr. **96**:66 (Jan. 14) 1933.

Prokoptschuk and Baranowsky relate the clinical histories of two women, aged 32 and 28. In the first the impetigo herpetiformis developed toward the end of pregnancy. The steady exacerbation of the disease manifestations and the development of visual disturbances made it necessary to induce labor. Although after delivery there was a gradual decrease in the cutaneous manifestations and in the fever, the woman finally died. In the second patient the impetigo herpetiformis was extremely painful, spread eccentrically and was accompanied by a typhoid-like condition, with high temperature, attacks of chills, pains in the arms and legs and headaches. Menstruation had not taken place for several months, but the woman was not pregnant. Because the skin disease spread more and more and the patient became steadily weaker, blood transfusion was tried. The result was that on the third day after the transfusion of 370 cc. the temperature dropped considerably, and on the following day it was normal. The further spreading of the skin disease ceased, and the scabs fell off. Several weeks later, the patient was completely cured. This favorable result of blood transfusion in a disease that is refractory to all other treatments induced the authors to report these two cases. They think that neither pregnancy nor disorders in the genital sphere are the cause of impetigo herpetiformis, but that sepsis is the causal factor. They base this opinion on the observations during postmortem examination in the first reported case, particularly on changes in the spleen that are typical of sepsis. [J. A. M. A.]

DEMONSTRATION OF SESSILE ANTIBODIES IN PATIENTS WITH ECZEMA. F. BERNSTEIN and B. VOGT, Dermat. Ztschr. **64**:304 (Sept.) 1932.

With the expectation of demonstrating sessile antibodies which would not be shown by either the Prausnitz-Küstner or Königstein-Urbach methods, the authors developed another passive transfer method. They applied a cantharides plaster for twelve hours to an unaffected area on the subject, removed the top of the bulla and obtained material for their test by curetting the base, thus obtaining tissue and fluid from the deeper layers of the epidermis and the papillae. This was diluted ten times and injected intracutaneously into two or more areas in normal, nonallergic subjects. These areas were then used for patch tests with the antigen. In two cases of vasculo-epidermal idiosyncrasy, the test was positive, as were both the Prausnitz-Küstner and Königstein-Urbach tests. In nine cases of true eczema this test was negative, as were the other types of passive transfer.

EXTIRPATION OF THE PRIMARY SYPHILOMA. S. T. PAWLOW and W. A. KARGIN, Dermat. Ztschr. **64**:316 (Sept.) 1932.

The authors found that the excision of the primary lesion of syphilis of the rabbit during its development increased the probability of generalized lesions. This indicates that the natural resistance induced by the virus is decreased. This excision usually includes the removal of the affected testis. In order to rule out the effect on the hormones, they removed the unaffected testis in several animals without disturbing the primary lesion. This did not increase the percentage of generalized lesions.

IMMUNOLOGIC STUDIES OF ASYMPTOMATIC SYPHILIS OF THE WHITE MOUSE. FRANZ KOCH, Dermat. Ztschr. **65**:24 (Nov.) 1932.

The author applied the Meinicke microreaction to the serum of ninety-eight mice infected with syphilis. In no case was a positive reaction encountered. He also tested for the "loading phenomena" (*Beladungsphänomen*) described by Rieckenberg in 1917 as occurring in mice affected with trypanosomiasis. The test, as modified by Brussin, consists in mixing 3 drops of the blood of an infected animal with 3 drops of 2 per cent citrated bouillon and 2 drops of an emulsion of

the infecting organism. This mixture under the microscope shows a clumping of the blood platelets around the organisms, a phenomenon thought to be due to the development of special antibodies. It did not occur in any of the series studied by Koch. He concludes that the mouse presents no immunologic reaction to a syphilitic infection.

L. TAUSSIG, San Francisco.

HISTOLOGY OF THE SKIN OF INFANTS, WITH SPECIAL REFERENCE TO THE CONNECTIVE TISSUE AND FAT. FELIZ WEISS, Jahrb. f. Kinderh. **135**:*272* (May) 1932.

The skin of newly born infants who were born at full term and were of low weight and vigor and of older infants, both healthy ones and those affected by nutritional upsets, was studied by the usual histologic methods. At birth, the differentiation of the epidermis is well advanced on the soles, but not in other areas. The number of the nucleated layers is few; the granular and cornified strata are irregular, and the lamination of the latter is absent. The connective tissue portion of the corium develops steadily with age, but the elastic tissue is very slightly developed.

In "debility," the lobules of fat of the subcutis preserve their embryonic appearance; between the reticula are often seen islands of blood-forming tissue. In the infant born at full term, the fat stores of the soles are underdeveloped. This, together with the rich vascularity of the fatty tissue, explains the rosy color of the soles of normal infants. Mature development of the subcutaneous fat is attained only in late infancy. For this reason, various general noxae affect the subcutaneous fat of infants profoundly. The fat stores of the soles, however, are affected to the least degree.

CLAUSEN, Rochester, N. Y. [AM. J. DIS. CHILD.]

EXPERIMENTAL SCLERODERMA DUE TO PARATHYROID HORMONE. H. SELYE, Virchows Arch. f. path. Anat. **286**:91, 1932.

The author gives a concise review of the history, clinical manifestations, pathology and theories of scleroderma in human beings. In his own experimental work, which was done in the school of hygiene of the Johns Hopkins University, nursling rats from 7 to 14 days old received a daily intraperitoneal injection of from 5 to 10 units of parathyroid extract-Collip for three or four successive days. In 20 per cent of the animals changes occurred that the author considers identical with those of scleroderma in human beings. These changes began after the second dose of the parathyroid extract, the early changes being similar to those of the edematous stage of scleroderma. Then followed an indurative stage, and the atrophic stage was reached in about fifteen days. Animals that received only a single course of three or four daily injections recovered, and two months after the first administration the skin had returned to normal. The author thinks that hyperparathyrosis is not a disease entity, but that there are several forms of hyperparathyrosis characterized by different clinical and pathologic states. An excess of parathyroid hormone brings about a condition of the body that manifests itself in a variety of disease pictures. Among these he includes scleroderma, osteitis fibrosa cystica and Albers-Schoenberg marble disease of bone. In a number of other syndromes, such as Paget's disease of the bone, von Recklinghausen's neurofibromatosis, progressive hemiatrophy of the face and periarteritis nodosa, in which parathyroid hyperactivity has been postulated, the relationship of hormone and disease is not so clear. The article, which is not unduly long, contains 191 references to the literature.

SCHULTZ, Evanston, Ill. [ARCH. PATH.]

OCCUPATIONAL DERMATOSES IN A TAR PAPER FACTORY. E. I. JOFFE, Sovet. vestnik venerol. i dermat., 1932, no. 6, p. 33.

Three men among the workers of the tar paper factory showed pellagroid brown-red discoloration of the skin of the face and hands, with slight infiltration and

scaling. The sclerae had a yellow tinge. Two blond women had a subacute universal dermatitis. The author attributes these conditions to the photodynamic properties of the tar.

Twenty-three workers had a disorder of the follicles, consisting of small and large black comedones on the face and on the extensor surface of the hands, forearms and thighs and also on the abdomen; these were associated for the most part with dusky red perifollicular papules varying in size from that of a pinhead to that of a lentil, most of which became pustular. In five workers of this group the lesions coalesced to form patches. Histologic examination showed hyperkeratosis, acanthosis, vacuolation, dilatation of the follicles, vascular dilatation and perivascular infiltration. This follicular form of dermatosis the author attributes to the mechanical penetration of the tar into the follicles, which produces comedones, and to the chemical irritation which produces folliculitis and acne lesions.

In forty-one workers, no pyodermic lesions of any kind were seen, in spite of the warm weather and the dirty work. According to the author, it is probable that the phenols in the tar mass have a disinfecting influence.

As a preventive measure, the author urges that in factories clothing of soft material should be worn over underwear and not next to the skin; a canvas apron soaked in fat should be worn over the clothing. Facilities for bathing with warm water should be provided.

Reactions Following the Use of Different Series of Neoarsphenamine. A. P. Feldman and N. M. Laichter, Sovet. vestnik venerol. i dermat., 1932, no. 6, p. 37.

The authors studied 54 specimens of neoarsphenamine in regard to the reactions obtained in 2,273 patients to whom 20,587 injections were given. Slight reactions consisting of headache, dizziness, fever, metrorrhagia and epistaxis or gastro-intestinal disturbance occurred in 4.87 per cent of the patients to whom injections were given; the reactions occurred much more frequently in the women than in the men. Nitritoid reactions occurred in 0.04 per cent of the patients, dermatitis in 0.22 per cent (twice as frequently in the women as in the men) and icterus in 0.34 per cent (twice as frequently in the men as in the women). Two patients had apoplexy, one of whom died. Thirteen of the neoarsphenamine series caused serious reactions; the others caused light reactions of short duration. The longer the specimen had been on the market the more toxic it was. No arsphenamine older than one and a half years is allowed to be used. The authors urge improvement in the preparation and packing of the drug. Biologic and clinical tests which are carried out by the government should be supplemented by observation. In case of reactions, the government control commission should be informed; and in case of the more serious reactions, a detailed report and a carefully compiled history should be given to the nearest venereal institute.

The authors conclude that treatment may be continued following light reactions of short duration; that in a large number of cases reactions are dependent on the individual constitution of the patient; that some neoarsphenamine series are to be considered toxic, the toxicity being increased with the age of the drug.

Ulcerations of the Skin in Workers in a Hide Factory. L. A. Abramovich and A. M. Tabachnik, Sovet. vestnik venerol. i dermat., 1932, no. 7, p. 13.

This investigation was necessitated by the frequent occurrence of diseases of the skin in workers in a hide factory at Taganrog, which is one of the most important factories in Soviet Russia, employing 1,150 workers and sending out from 1,700 to 2,000 hides every twenty-four hours. The diseases of the skin ranged from smoothening of the skin of the fingers, slight keratosis of the palms and palmar surface of the fingers at the joints, erythema of the tips of the fingers and tenderness to pressure and touch to complete disappearance of the markings of the skin, numerous erosions the size of a pinhead and necrotic ulcerations.

The authors analyze in detail the work done in the factory and show a direct relation between the degree of severity and the frequency of the dermatoses to the particular tasks which bring the different groups of workers in varying degrees of contact with the chemicals used. These chemicals are sodium hydroxide and calcium sulphide, which are formed from the action of sodium sulphide and calcium hydroxide on each other, according to the formula $Ca(OH)_2 + Na_2S + 2H_2O \rightarrow Ca(SH)_2 + 4NaOH$. Eighty-four and a half per cent of the workers had been affected once; 12.2 per cent twice, 2.5 per cent, three times, and 0.8 per cent, five times. Every worker affected lost 10.9 days of work.

As it is impossible at present to replace these chemicals with harmless ones, the authors believe that the main solution is to reduce the time of contact with the chemicals to a minimum. Most important, therefore, is the removal of the chemicals from the hides at the earliest possible moment. As additional preventive measures, the authors advise mechanization of some parts of the work, the wearing of gloves, neutralization of the alkalis by frequent immersion of the hands in an acid solution, frequent application of hydrous wool fat in which 5 per cent boric acid has been incorporated and particular care of any fissures or lesions of the skin.

Occupational Diseases of the Skin in Wire Drawers. I. A. Lublinski, Sovet. vestnik venerol. i dermat., 1932, no. 7, p. 28.

Workers occupied in wire drawing show diseases of the skin which are due to contact with sulphuric acid solution and to frequent mechanical injury from handling the wire. Of eighty-one workers examined, 27.1 per cent had eczema and dermatitis, localized on the hands, fingers and forearms. Vesicular scaling and chronic lichenoid eczema with fissures, also eczema tyloticum of the palms, with fissures and deep vesicles, were seen. Thirty-seven per cent of the workers showed on the fingers small but deep ulcerations, which healed in from one and one-half to two months, leaving a round, callus-like scar. These ulcerations are usually caused by chromic salts and by zinc chloride, but they also result from long exposure to weaker chemicals in conditions of traumatized skin. Seventy-one per cent of the workers had swelling of the palms caused by prolonged contact with fat and water and also by local hyperhidrosis. In 72.8 per cent of the workers, small traumatic lesions could be found on the hands, which formed a favorable factor for secondary infection, deep action of the chemicals and sensitization. The findings reported apply to the period of 1929 and 1930. In 1931, a number of improvements in the technic of wire drawing took place, so that the irritation caused by chemicals and fats was lessened, and mechanical injuries of the skin decreased considerably owing to mechanization of some of the work. Since then the percentage of diseases of the skin has markedly decreased.

Changes in the Functional Activity of the Liver in Syphilitic Patients. J. P. Bratslavski and D. G. Tulberman, Sovet. vestnik venerol. i dermat., 1932, no. 8, p. 31.

The authors try to solve the following problems: 1 How often is the liver damaged in syphilitic patients without showing any signs? 2. What influence have arsphenamine and bismuth on the liver? 3. How often and how intensively do these agents make an already damaged liver show signs of hepatitis with cholemia and choluria? 4. Can antisyphilitic treatment prevent a liver in which the damage is latent from manifesting signs of that damage.

The authors have studied 109 patients with all stages of syphilis. The urine of each patient was examined for surface tension, urobilin, urobilinogen and bile pigment, and the blood for bilirubin, according to the method of Vandenberg. The duodenal juice of 24 patients was examined for bilirubin, urobilin, protein and dye (indigo carmine), and the carbohydrate metabolism of 29 was studied by the sugar tolerance test. They found that the sugar tolerance test and the study of the duodenal juice were the most valuable, indicating disturbance of hepatic function in a high percentage of the cases. However, as these tests are too complicated for routine use, the authors recommend highly for every patient receiving

antisyphilitic treatment examination of the surface tension of the urine. This was lowered in 22 per cent of the cases, in 25 per cent of which icterus soon developed.

They found that not syphilis but arsphenamine was the main etiologic factor in producing icterus. Bismuth also frequently produced a disturbance in hepatic function.

Of the 109 syphilitic patients studied, 40 per cent had changes in the liver, mainly those who gave a history of previous illness, such as typhus, typhoid, recurrent fever or dysentery.

In cases of real damage to the liver, such as those of hepatitis, hepatosplenitis and hepatitis following malaria, even if there was no manifest icterus, the tests indicated functional disturbance. When the liver was slightly damaged only some of the tests were positive.

ANTISYPHILITIC TREATMENT AND THE SEROREACTION OF THE BLOOD. M. EIHARA, Lues: Bull. Soc. japon. de syph. **8**:104 (Aug.) 1932.

The author studied the relation between antisyphilitic treatment and the seroreaction of the blood in prostitutes. He found that the administration of 5 Gm. of arsphenamine changed the positive reaction to a negative one in 50 per cent of the cases of primary, secondary and latent syphilis; from 1 to 3 Gm. of arsphenamine changed the reaction only in 26 per cent of the cases. When less than 1 Gm. was received the reaction never became negative. A strong reaction in congenital syphilis was not influenced even by 5 Gm. The negative reaction which was obtained by treatment again became positive in 86.24 per cent of the cases.

EXPERIMENTAL SYPHILIS IN RATS: I. THE SPIROCHETE CONTENT IN THE REGIONAL LYMPH NODES OF SYPHILITIC RATS. K. YASUMOTO, Lues: Bull. Soc. japon. de syph. **8**:131 (Oct.) 1932.

After subcutaneous inoculation of the scrotum of the rat with 0.5 cc. of an emulsion of spirochetes, the lymph nodes in the iliac region were excised at various intervals, weighed and measured, divided into six parts and examined under dark-field illumination in fifty microscopic fields. The results obtained were as follows: 1. No motile spirochetes were found until eight days after inoculation. From the fourteenth to the fiftieth day, spirochetes were always found, and occasionally later. 2. The iliac lymph nodes showed marked swelling from about the tenth day after inoculation.

EXPERIMENTAL SYPHILIS IN RATS: II. SPIROCHETES IN ILIAC LYMPH NODES AFTER INOCULATION WITH SYPHILITIC VIRUS IN DIFFERENT LOCATIONS. K. YASUMOTO, Lues: Bull. Soc. japon. de syph. **8**:143 (Oct.) 1932.

Syphilitic virus was injected into the scrotum, peritoneum and testicle, subcutaneously into the back, intravenously and intracardially. After certain intervals the spirochete content in the iliac lymph nodes was examined. The earliest appearance of spirochetes was noted after scrotal inoculation, which gave also the greatest percentage of positive results. Intravenous and intracardial inoculation gave the smallest number of positive results. One month after infection spirochetes were found frequently in the iliac nodes, irrespective of the region inoculated. Also the axillary and cervical lymph nodes and those nodes in the lower part of the abdomen contained spirochetes at a certain time following inoculation.

IMMUNOLOGIC STUDIES OF SPIROCHETOSES: I. STUDY OF INTRAVENOUS REINFECTION. REACTION OF THE REGION OF PRIMARY CUTANEOUS INOCULATION AFTER INTRAVENOUS REINFECTION IN FRAMBESIA. H. MISAIZU, Lues: Bull. Soc. japon. de syph. **8**:157 (Oct.) 1932.

Rabbits were inoculated cutaneously with frambesia spirochetes and ten, twenty, thirty and fifty days later were treated with arsphenamine. They were then

reinfected intravenously with the spirochete emulsion. The following observations were made: (1) The reinfection which was carried out ten days after the first inoculation had a nine and one-half days longer period of incubation; (2) following the reinfections which were carried out twenty, thirty and fifty days after the cutaneous inoculation an erythematous reaction was noted in the place of the first inoculation but no generalization of symptoms took place; (3) the intensity of the specific reaction of the area of skin which was previously inoculated increased with the length of the interval between the first and the second infection.

Intravenous reinfection of rabbits which had been inoculated intravenously twenty, twenty-five, thirty-one, thirty-two and thirty-five days previously gave the following results: (1) Generalization of symptoms took place in the rabbits which were reinfected twenty, twenty-five or thirty-one days after the first infection, and (2) generalization of symptoms was more intense in the animals which were reinfected thirty-two or thirty-six days after the first inoculation and which at the time of reinfection had a papular eruption or orchitis. The generalization of symptoms took place from ten to twelve days later than in control animals.

BLOOM, New York.

Society Transactions

CHICAGO DERMATOLOGICAL SOCIETY

E. A. Oliver, M.D., *Secretary*

Regular Meeting, Oct. 19, 1932

Michael H. Ebert, M.D., *President, Presiding*

Erythema Perstans? Lupus Erythematosus Disseminatus Subacutus? Presented by Dr. Oliver S. Ormsby.

A man, aged 33, presents a cutaneous disorder of ten years' duration. Most of this time the condition has been active in the summer and quiescent during the winter. At examination the eruption was present on the dorsa of the hands, over the shoulders and upper portion of the back and on the neck and the arms. Over the dorsal surfaces of the hands there were diffuse redness and scaling, but in all other areas circular and gyrate erythematous and scaling lesions were present. The circular lesions varied in extent from areas the size of a dime to those larger than a palm. The early lesion was a wheel-like macule which spread peripherally. Frequent coalescence produced a gyrate configuration. The lesions were bluish red and not infiltrated. Scaling occurred on the inner margin of the spreading peripheral ring. There have been no subjective symptoms.

Examination of the blood revealed no significant changes; there were 5 per cent eosinophils.

Dr. Finnerud described the histologic picture as follows: "In spite of rather marked edema of the papillary corium and epidermis, there is little corneal parakeratosis. There is some vacuolar degeneration of the lower portion of the prickle cell layer, and in places no sharp contrast may be seen between the cells of the basal layer and the underlying infiltrating cells of the corium. In the lower portion of the epidermis there are a few migratory leukocytes. The papillae and rete pegs are effaced so as to form nearly a straight line. The papillary and subpapillary corium is the seat of a moderate, almost diffuse, cellular infiltration which consists chiefly of lymphocytes, but contains a moderate number of polymorphonuclear neutrophils. In the upper half of the reticular corium elsewhere this change is practically wholly perivascular. The changes are those of an acute nonvesicular inflammatory process.

A section was sent to Dr. Hamilton Montgomery who made a histologic diagnosis of subacute disseminated lupus erythematosus from the section alone.

DISCUSSION

Dr. H. E. Michelson: I believe this to be an extraordinary case of lupus erythematosus. The condition does not resemble that in the case of erythema annulare centrifugum that Dr. Butler reported.

Dr. J. H. Mitchell: Has Dr. Ormsby tested the reaction to light in this case? A patient with a cutaneous irritation as extensive as this who spent some time at Johns Hopkins Hospital, and was later observed in St. Louis by Dr. Engman, gave a history of marked reaction to light. I tested him, and he responded violently to exposure for a minute. Last year he had an eruption on wearing his bathing suit; the skin on the portions of the body that had been covered was free from lesions. The lesions were not as circinate as those in this case but were otherwise similar.

DR. H. R. FOERSTER: While this eruption is unusual in the configuration and character of the lesions I believe it belongs in the group of lupus erythematosus-like eruptions that may be precipitated by sensitization to light, though they are caused, presumably, by internal toxic factors.

DR. E. P. ZEISLER: I wish to question the diagnosis of lupus erythematosus. There are no lesions on the face that I can see, and there is not the typical distribution of the subacute disseminate type of lupus erythematosus. Some lesions are psoriasiform and gyrate. I think that the condition is an atypical gyrate parapsoriasis.

DR. E. A. OLIVER: The patient told me that his condition is made much worse by his going out in the sunlight. This is indicative of lupus erythematosus. He spoke particularly of the sun irritating his arms and the other parts that were involved.

DR. OLIVER S. ORMSBY: I have not made a test with the sun's rays, for I feel that there is no doubt that the patient has a sensitization to light. His disorder occurs only in the summer, but lasts into the cold weather. The point of interest is that the diagnosis of subacute disseminated lupus erythematosus was made histologically by Dr. Montgomery who has had much experience with this type of lupus erythematosus. He made the diagnosis from the section alone, without knowing any of the history. The two cases of erythema perstans with circinate and gyrate lesions reported by Wende had a histologic picture resembling the one in this case, and in those cases lupus erythematosus was thought of. During the past several years the question of lupus erythematosus has been discussed in connection with a number of other cases reported as instances of erythema perstans. I thought that this case would be of interest in view of the fact that there is now much more information on lupus erythematosus than there was when Wende did his work twenty-six years ago. All dermatologists know that patients with lupus erythematosus are sensitive to light. I have had two patients with discoid lupus erythematosus in whom the acute disseminated form developed following sunburn; both patients died. Light is an important factor, but I do not think that this case can be classed as one of mere allergy to light. The condition is persistent erythema of the Wende type or an unusual clinical manifestation of disseminated lupus erythematosus of the subacute type.

GANGLIONEUROMA OR NEUROCYTOBLASTOMA. Presented by DR. PAUL A. O'LEARY.

This patient, a married man, aged 26, a Jewish clothing salesman, was first examined in the Mayo Clinic on April 8, 1930. He complained of pyuria, which was explained on the basis of verumontanitis and prostatitis. He returned to the clinic again in the fall of 1930 complaining of flatulence and fulness in the abdomen. He had no intolerance for food. Roentgenograms showed a congenital nonrotation of the colon. An abdominal exploration was made and revealed incomplete rotation of the colon; the appendix and cecum were just to the right of the midline in the position of the transverse colon; exploration of the rest of the colon and small intestine gave negative results, except that there was a veil running apparently from the beginning of the jejunum for a considerable distance, which may have been an obstructing element; this was freed, ligated and turned back; the appendix was definitely inflamed, and appendectomy was done; exploration of the gallbladder gave negative results. There was no record of any cutaneous trouble at that time.

The patient was again seen in February, 1932, because of lesions on the skin, which first appeared on the buttocks in September, 1931, as discrete, pea-sized nodules or papules. The lesions had continued to spread, involving the trunk, axilla and groin. There was no itching or burning. At this examination the lesions had a yellowish hue, bearing a strong resemblance to xanthoma.

The patient was again seen at the clinic in May, 1932, at which time he had almost twice the number of lesions he had shown previously. A few of the earlier nodules showed evidence of partial involution with loss of induration and flattening

to a pigmented macule. The results of chemical studies of the blood were reported as follows: cholesterol (normal from 165 to 200 mg.), 200 mg. per hundred cubic centimeters of plasma; cholesterol esters (normal from 110 to 145 mg.), 189 mg.; lecithin (normal from 200 to 250 mg.), 279 mg.; total fatty acids (normal from 335 to 350 mg.), 286 mg.; total lipoids (normal from 500 to 550 mg.), 486 mg.; blood sugar (normal from 0.09 to 0.12 per cent), 0.088 per cent.

In a differential smear, made at one of the patient's earlier visits to the clinic, there had been a suggestion of leukemia because of the presence of immature monocytes and lymphocytes. This was not borne out in subsequent studies. The roentgenogram of the colon was normal except for proximal failure of rotation, with the cecum in the midline, low in the pelvis. A roentgenogram of the chest showed thickening of the left hilus and probably enlarged glands; the roentgenogram of the stomach was normal. There was a slight increase in the amount of cholesterol esters, and of lecithin, with a slight decrease in the total fatty acids and total lipoids.

DISCUSSION

DR. CLARK W. FINNERUD: I am reluctant to make the suggestion of sarcoid or another "tuberculid" in this case, particularly since the sections have been examined and reported on by a good many of the best qualified dermatologists, neurologists and pathologists. I have seen cases of superficial sarcoid, however, in which histologic changes somewhat similar to these were present. There are some features of these sections that I do not understand, for instance, certain of the large cells, which possibly could be explained on the basis of their being among the unusual types occasionally seen, such as histiocytes. My first thought, clinically, was of the tuberculous appearance of the lesions, of lupus vulgaris or sarcoid. I also considered xanthoma. I think that it would be worth while, in spite of the fact that the nature of the condition is fairly definite in the minds of those who studied it at length, to study a new lesion, not only histologically but by inoculation of guinea-pigs.

DR. OLIVER S. ORMSBY: I think that I have not seen this condition before, and I am at a loss to say what it is, either clinically or histologically. The appearance suggests some form of tuberculosis.

DR. M. R. CARO: I had occasion to look at the slides with Dr. Jaffé, and he thought the condition to be reticulo-endothelioma with xanthomatous changes. At that time there was a definite yellowish nodular lesion on the extensor surface of the right forearm. This has disappeared, and the patient said that it underwent spontaneous involution.

DR. H. RATTNER: This patient was seen by Dr. Pusey several months ago, at which time the clinical picture was as it is now except that there were fewer lesions. The slides of the histologic sections mentioned by Dr. Caro were made then.

DR. O. H. FOERSTER: It should be brought out, perhaps, that tissue from the appendix showed similar histologic elements. That may be something to take into account in the further study of this condition. Certainly it is a unique dermatologic disorder. I have never seen anything like it.

DR. PAUL A. O'LEARY: When this patient was seen originally, the diagnosis of xanthoma simplex seemed warranted. He had been seen previously by several experienced dermatologists who had suggested the possibility of xanthoma. However, on histologic examination it was impossible to find any evidence of xanthoma, and repeated efforts to substantiate this diagnosis have been futile. Dr. Kernohan, a neuropathologist, called attention to the presence of ganglion cells. Dr. Montgomery has sent the slides to several outstanding neuropathologists, dermatopathologists and general pathologists. The general pathologists have agreed with Dr. Jaffé that the condition is not xanthoma but reticulo-endothelioma, while the neuropathologists have attached considerable significance to the presence of the ganglion cells, and the dermatopathologists have been frank in admitting their limitations. The literature contains few references to ganglioneuromas of the

skin. I am not presenting this patient with a diagnosis of xanthoma but as showing a condition which my associates and I have not been able to classify definitely, although the possibility of a ganglioneuroma is uppermost in our minds.

The patient was operated on about two years ago because of vague abdominal distress and was found to have incomplete rotation of the colon, with the appendix to the left of the midline of the abdomen. The appendix was removed and on histologic reexamination recently was found to contain many ganglion cells. The patient is cooperative, and I trust that I shall have the opportunity of reporting the case in more detail in the near future.

GRANULOMA FUNGOIDES. Presented by DR. E. A. OLIVER.

A Negro, aged 32, a native of Alabama, presents an eruption of five years' duration, which began with the development of numerous scaling, erythematous patches on the abdomen. Intense pruritus has been present since the onset. After persisting for several months the patches were succeeded by infiltrated plaques, and these in turn, after several years, by the tumors now present.

On examination, the patient, who appeared to be robust, presented over the sides and front of the neck, the upper portion of the back, the chest, the abdomen and the arms many lesions varying in size from that of a small hickory nut to that of an egg. Some of these lesions were infiltrated plaques; others were ulcerated and tumorous. The picture was that of a typical granuloma fungoides. The Wassermann reaction was negative.

Microscopic examination of a piece of tissue taken from one of the larger masses showed the histologic picture characteristic of that stage of granuloma fungoides.

DISCUSSION

DR. OLIVER S. ORMSBY: I believe that this is the first case of mycosis fungoides I have seen in a Negro in Chicago.

DR. E. A. OLIVER: I found reports of two cases occurring in Negroes, one by Strobel and Hazen and one by Wolf, both in the *Journal of Cutaneous Diseases.* I do not recall having seen a case before in a Negro, and that was one of the reasons the patient was presented.

DR. RUBEN NOMLAND: There was a case of this condition in a Negro at the Mayo Clinic when I was there.

POIKILODERMA VASCULARE. Presented by DR. A. W. STILLIANS.

A German stationary engineer, aged 63, complains of great weakness and severe pruritus, which began in January, 1932. The pruritus was first noted on the back of the neck, and was relieved by a soothing ointment. Three weeks later the forehead became red and was slightly pruritic. The redness extended to the sides of the face, the neck and the upper part of the chest, and soon involved large portions of the body. It was accompanied by severe pruritus.

When the patient was first seen in March, 1932, an extensive symmetrical, violaceous-red erythema was present. The blood pressure was 90 systolic and 60 diastolic. The blood was normal except that there were 3 per cent myelocytes and 12 per cent immature polymorphonuclears. The red blood cell count was 4,530,000; the white cell count, 11,700, and hemoglobin, 80 per cent. The differential count showed: polymorphonuclear neutrophils, 64 per cent; lymphocytes, 27 per cent; large mononuclears, 4 per cent; eosinophils, 2 per cent, and myelocytes, 3 per cent. The Wassermann reaction was negative.

At present, the erythema is less marked on the face, only a slight redness of the forehead and cheeks remaining. The neck, chest, abdomen, lower part of the back, buttocks, thighs, arms and forearms, backs of the hands, proximal phalanges of the fingers and backs of the legs are almost universally involved, and there are patches of the eruption on the sides and front of the legs and on the feet. The involvement of the neck extends about 2 cm. above the occipital hair line.

There are marked atrophy of the skin of the neck, lichenification of the wrists, numerous scars, some of which are deep but principally atrophic, and marked pigment, and on slight pressure with glass fine telangiectases and tiny pigmented spots are visible. The upper portion of the back is scaly. Linear leukoplakia of the inner sides of both cheeks back of the commissures and on the gums may be observed, which is most marked on the lower right gum and on the right cheek.

The blood pressure has risen to 120 systolic and 80 diastolic.

A biopsy specimen from the inner surface of the right thigh shows edema of the epidermis and upper part of the corium, markedly dilated blood vessels, a marked deposit of pigment in the upper part of the corium and several small round infiltrates of epithelioid, connective tissue cells and lymphocytes.

DISCUSSION

DR. PAUL A. O'LEARY: Many of the members will recall that Dr. Hamilton Montgomery showed a patient before this society last year who had the identical cutaneous picture that this patient presents. It was felt that the case was one of poikiloderma atrophicans vasculare, although there was some discussion pro and con as to the nature of the disorder. The fact that there is no disagreement with Dr. Stillians in regard to the diagnosis in his case suggests that ideas are becoming crystallized, at least in regard to the clinical picture of poikiloderma atrophicans vasculare.

PSEUDOXANTHOMA ELASTICUM OF THE SKIN; ANGIOID STREAKS OF THE RETINA; OLD CHORIORETINITIS. Presented by DR. RUBEN NOMLAND and DR. BERTHA KLIEN.

A German woman, aged 40, presents a cutaneous eruption. She states that this has been present for about thirty years, and that she has had progressive loss of vision for about two years.

The cutaneous eruption was first noted as small yellowish areas on the left side of the base of the neck, at about the age of 9, and it has gradually increased. When the patient was 30 years of age, similar lesions were noted in the groins, and later they appeared in the axillae.

Examination showed that the eruption was most marked at the base of the neck, in a band of irregular width (10 cm. or more) extending around the neck. It consisted of a retiform, papular yellow discoloration. In one area there was definite formation of papules with lesions from 2 to 3 mm. in diameter. Similar lesions were observed in the groins along the entire length of the inguinal fold and in both axillae. In the retiform areas the normal surface architecture of the skin was retained. In the mouth several lesions were present on the left cheek and more on the right side.

A biopsy specimen stained with acid orcein for elastic tissue, and with hematoxylin and eosin, showed in more or less circumscribed areas in the subpapillary and middle cutis elastic fibers occurring as large coils, which were thickened, broken and fragmented. They took a darker stain than normal elastic tissue. There was no inflammatory reaction or atrophy of the epidermis. The degenerated thickened fibrils took an intense blue stain with hematoxylin and turned dark brown when stained with silver nitrate. This was an indication, but not a proof, that there was calcium deposited about the degenerated elastic tissue.

The ocular findings (Dr. Klien) were as follows: There had been progressive loss of vision in both eyes for the past two years, the onset of which was characterized by marked metamorphopsia. The eyes had never been red or painful, and no trauma was recalled. The family history was unimportant. Vision in the right eye was 4/10; in the left, 1/10. Both eyes were externally normal, and the media were clear. Ophthalmoscopic examination of the right fundus showed a well colored, sharply defined optic disk and normal retinal blood vessels. Several small areas of partial choroidal atrophy were scattered over the region of the posterior pole, and there was a larger grayish, poorly outlined area of choroidal

atrophy, 3 by 4 papilla diameters in size, with irregular proliferation of pigment and some overlying connective tissue adjoining the temporal margin of the optic disk. In a semicircular arrangement around the disk there were a number of reddish-brown angioid streaks with the characteristic ragged outlines. Radial projections emerged from several places, and could be followed far toward the periphery.

The left fundus presented a similar picture with more marked formation of angioid streaks. The optic disk was well colored, but somewhat indistinctly outlined. The retinal blood vessels were normal. Several small areas of partial choroidal atrophy were present at the posterior pole. The macula was occupied by a gray, not clearcut plaque, 1 papilla diameter wide, with which one wide angioid streak was continuous. A zone of fine yellowish dots of moth-eaten appearance surrounded this plaque. Several small, flat, deep hemorrhages were seen in the neighborhood of a spider-like confluence of streaks temporal to the disk. Within this streak small choroidal vessels of normal appearance were distinctly discernible. The peripheries of both fundi showed fine, diffuse granular pigmentary disturbances. Both eyes presented the characteristic picture of angioid streaks in a well advanced stage, with already marked macular lesions.

DISCUSSION

DR. M. H. EBERT: I do not recall having heard of the association of pseudoxanthoma elasticum with angioid streaks of the retina. The description of Darier gave me the impression that the lesions are larger, although some are described as being retiform. The histologic picture is perfect.

DR. RUBEN NOMLAND: I shall read Dr. Klien's remarks concerning the case. It was she who recognized the condition.

"Only during the past two years has attention been paid to the association of this rare disease of the fundus with the equally rare lesion of the skin, which would point to a systemic involvement of the elastic substances of the body. This association can scarcely be considered accidental, as sixteen of twenty-one cases of angioid streaks reported during the past two years showed this cutaneous condition. As eyes with angioid streaks, observed ophthalmoscopically, have not yet been examined histologically, it is difficult to say just how detailed the parallelism may be between the cutaneous and the ocular lesions.

"Several interesting theories have been advanced with this point of view in mind. Clay (Clay, S.: Angioid Streaks of the Retina and Pseudo-Xanthoma Elasticum, *Arch. Ophth.* **8**:334 [Sept.] 1932) tried to explain the streaks as being caused by mechanical thrombosis of the short posterior ciliary veins by the increase of fibroblastic tissue in the sclera. Marchesani and Wirz (Marchesani, O., and Wirz, F.: Die Pigment streifer Erkrankung der Retina, das Pseudo-xanthom der Haut, eine Systermerkrankung, *Arch. f. Augenh.* **104**:552, 1931), and before them Kofler (Kofler, A.: *Arch. f. Augenh.* **82**:134, 1917), gave a different explanation, assuming, on the basis of a general inferiority of the elastic substance of the body, a pathologic fragility of the lamina basalis chorioideae, or so-called glass membrane. Only the inner lamella of this membrane is of a homogeneous, cuticular type, the outer one consisting of a plexus of fine elastic fibers which are united with the abundant elastic fibers of the capillary interstices in the choroid capillaries. The natural variations of the intra-ocular tension by muscular action or by slight pressure on the eyeball (for instance, rubbing the eyes) may in such eyes cause dehiscences of the elastic lamella, which would be comparable to the elastoklasis of the skin near joints. The small hemorrhages which are so frequently found in the deep layers of the retina or between the retina and choroid in the neighborhood of the streaks can easily be explained in this way, as the elastic lamella has a close connection with the choroid capillaries. The unique ophthalmoscopic finding in this case, i. e., visibility of the choroidal vessels within a wide angioid streak, which has never been observed before, can be explained only by Marchesani's theory, excluding, at least in this case, hemorrhages or fold formations as the possible origin of the angioid streaks."

LUPUS ERYTHEMATOSUS WITH SQUAMOUS CARCINOMA OF THE EAR. Presented by Dr. E. P. ZEISLER.

A woman, aged 36, shows scars in front of both ears and over the bridge of the nose, which she states have been present for fifteen years, following a previous inflammatory eruption over those areas. A rapidly growing tumor has been present for three months in the wing of the left ear.

Biopsy revealed a squamous carcinoma.

Eight years ago the patient received roentgenotherapy and eighteen months ago radiotherapy.

The case is presented as one of chronic discoid lupus erythematosus with carcinoma developing in the scar.

DISCUSSION

DR. H. E. MICHELSON: I have seen several cases of lupus erythematosus in which epithelioma or carcinoma developed. I think that it was Kummer of Innsbruck who wrote a splendid article on this subject, and I also think that Sir Norman Walker emphasized the fact that carcinoma may develop in these cases even though the patients have had no radiation treatment. In cases in which there has been radiation treatment one is inclined to think that the carcinoma is due to treatment, whereas it may be developing because of the extreme acanthosis and the epidermal stimulation. From the findings in this case I think that one should not temporize, but should make a radical excision. In almost all of these instances the carcinoma is of the squamous type.

DR. E. A. OLIVER: This patient was shown on several occasions last year at the dispensary. She was presented then as having lupus erythematosus with changes in the skin caused by treatment with radium and roentgen rays. At that time there was no evidence of epithelioma.

DR. OLIVER S. ORMSBY: I think that it should be emphasized that epithelioma does develop in the scars of lupus erythematosus, as well as in those of lupus vulgaris, frequently without the previous employment of radium or of roentgenotherapy. That it occurs following treatment is also true, but one should emphasize the fact that it is possible for epithelioma to occur without such treatment.

DR. E. P. ZEISLER: I have seen a typical epithelioma in a scar left by lupus vulgaris that was cured by Finsen light and for which roentgenotherapy had never been used. I am glad to have Dr. Michelson make the suggestion that he did, for it corresponds entirely with my own view.

MULTIPLE IDIOPATHIC HEMORRHAGIC (KAPOSI) SARCOMA. Presented by DR. F. E. SENEAR and DR. MAX S. WIEN.

H. M., a girl aged 15, from the University of Illinois, shows an eruption of two years' duration over the right foot and ankle. She states that following a sprain of the right ankle two years ago she noted a bluish discoloration over this area, which gradually increased in extent with subsequent thickening and scaling. When first seen by us, one month ago, the entire area was the site of a vegetative type of crusted dermatitis, which involuted following two weeks of soothing therapy. The condition had been stationary for the previous nine months.

Examination showed that the outer two thirds of the dorsum of the right side of the trunk, with extension to the ankle and to the region of both malleoli, was the site of a reddish-purple to bluish-brown infiltration of firm, somewhat rubbery consistency, the greater portion of which was covered by scales. There was edema of the right leg.

Biopsy revealed a thick, loose, non-nucleated scale. The epidermis showed slight acanthosis and edema, a thin continuous granular layer and an intact basal layer. In the upper part of the corium there were many proliferating blood vessels with surrounding loose mantles of lymphocytes. About the vessels and sweat glands and scattered throughout the corium were many cells containing brown pigment and many loose pigment granules. The stain for iron showed many blue granules of hemosiderin in the corium.

DISCUSSION

DR. H. E. MICHELSON: At first, on clinical grounds, I did not agree with the diagnosis, but after looking at the microscopic section I think that many features of Kaposi's sarcoma are present. All of the members of the society undoubtedly have read Dörffel's splendid article in the ARCHIVES OF DERMATOLOGY (Dörffel, Julius: Histogenesis of Multiple Idiopathic Hemorrhagic Sarcoma of Kaposi, ARCH. DERMAT. & SYPH. **26**:608 [Oct.] 1932), and realize from that that in the beginning the picture is variable. Continued observation is necessary in this case because there were no lesions on the toes, feet or face.

DR. C. W. FINNERUD: I do not think that the condition is Kaposi's sarcoma, clinically or histologically. The slight histologic changes could all be accounted for on the ground of a stasis dermatitis. The pigmentation and the verrucous changes I interpreted as being secondary manifestations of such an inflammatory process.

DR. J. H. MITCHELL: I noted that the patient also had varicosities of the leg.

DR. PAUL A. O'LEARY: I agree with the diagnosis as presented. Many bizarre features are to be seen in an early case of Kaposi's sarcoma. Not infrequently the onset of the disease is manifested in a pigmentary disturbance resembling Schamberg's disease; likewise the presence of varicose veins, particularly in young adults, is part of the general picture of Kaposi's sarcoma. The histologic section does not permit a diagnosis to be made. However, Dörffel in his recent study of this disease called attention to the variety of histopathologic pictures that must be anticipated.

DR. OLIVER S. ORMSBY: It is easy to conceive of the thickening that is going on in the patient's skin as secondary lichenification. In this country one classes this as hypertrophic eczema or hypertrophic dermatitis. The patients sometimes have verrucous lesions. Secondary lichenification may occur on a stasis dermatitis, which the condition in this case may be. I think that that possibility should be borne in mind.

DR. MAX S. WIEN: While the clinical picture alone would not justify a definite diagnosis, we considered Kaposi's sarcoma as a possibility, and since the histopathologic picture substantiates this diagnosis we feel that it can be accepted.

INFECTIOUS GRANULOMA WITH ULCERATION. Presented by DR. M. H. EBERT.

A Polish woman, aged 39, shows multiple ulcers on the backs of the hands and on the forearms, which she states appeared three months ago as the result of her scratching mosquito bites which she received while picking berries in the country. It has been impossible to learn the exact mode of onset. She states that she had not taken iodides or bromides and had never been ill. The ulcers are somewhat painful, but have not affected her general health. She has used a patent salve on them. She has eight children living and apparently well.

Examination showed on the backs of the hands, on the wrists and on the distal half of the forearms about two dozen nodules and plaques varying in size from that of a lima bean to that of a small coin. They were raised, bluish red and slightly infiltrated. The majority were ulcerated in the center. The ulcers were oval and had a punched-out appearance; the wall of the ulcer was perpendicular and not undermined. There was only a moderate amount of infiltration. The floor was granulated and covered with yellowish pus. The ulcers were not tender; one cherry-sized nodule was tense and fluctuant, and 2 cc. of yellowish pus was aspirated from it. Cultures were made of this pus.

The Wassermann reaction was 4 plus.

DISCUSSION

DR. E. A. OLIVER: I saw this patient with Dr. Ebert on Monday, and I think that he felt, as I did, that the preponderance of evidence was in favor of the condition being syphilis. One of the lesions was distinctly furuncular, and the

symmetry of the lesions was definitely contraindicative of syphilis; but the cleancut and punched-out character of the ulcers made us think of that disease. We did not know then that the Wassermann reaction was 100 per cent positive. I believe that the eruption is that of tertiary syphilis.

DR. M. H. EBERT: I agree with the points brought out by Dr. Oliver, particularly because 2 cc. of pus was aspirated from the furuncular lesion. I have never seen that happen in tertiary syphilis. The condition does not look like tuberculosis of any type. When I first saw the patient, I considered that the disorder might be some form of sporotrichosis. Dr. Foerster mentioned the ulcerating, gummatous type of sporotrichosis which sometimes resembles the gummatous type of tuberculosis and tuberculosis colliquativa, but he told me that the ulcers are never so numerous in that condition. In spite of the 4 plus Wassermann reaction, I shall be interested to know the effect of mercurial inunctions.

NOTE.—The condition was vastly improved in three weeks by treatment with mercurial inunctions.

DERMATITIS HERPETIFORMIS. Presented by DR. M. H. EBERT and DR. B. B. BEESON.

A man, aged 50, a stereotyper, shows a generalized pruritic eruption, which first appeared on the flexors of the forearms four months ago. The skin gradually became red, swollen and the site of a bullous eruption. He has been hospitalized for six weeks and gradually improved in the beginning, but for the past two weeks has been much worse.

One week ago the lesions were of the multiform erythema type, circular and gyrate, with raised, bluish-red plaques which were clearing in the center. During the past few days numerous tense yellow pustules the size of a split pea have appeared in groups on the flexors of the forearms, the trunk and the lower extremities. The erythema has become more diffuse. There are no lesions of the mucous membranes.

The differential blood count showed 31 per cent eosinophils.

DISCUSSION

DR. OLIVER S. ORMSBY: I saw this patient a week ago, and at that time he presented a typical picture of multiform erythema. There were no pustules, vesicles or other signs of dermatitis herpetiformis. He had the lesions of multiform erythema together with intense pruritus. There were 31 per cent eosinophils at that time, and such a count is never seen in multiform erythema alone. I mention this because one sometimes has difficulty in distinguishing between multiform erythema, pemphigus and dermatitis herpetiformis. Vesicles, pustules, urticarial lesions and erythematous lesions occur in cycles in dermatitis herpetiformis.

DR. J. H. MITCHELL: Some of the members of the society may remember the patient whom I sent to the Cook County Hospital last year. The condition cleared up with arsenical therapy. About two weeks ago he came to me with classic multiform erythema on the trunk. This lasted about a week, and without any therapy other than the administration of calcium internally it cleared up and there was no vesication. It is interesting to note that eosinophilia has been practically absent in this case.

PARAPSORIASIS EN PLAQUES. Presented by DR. F. E. SENEAR and DR. THEODORE CORNBLEET.

A. B., a white man, aged 62, from the University of Illinois, presented a generalized eruption on the trunk and extremities, which began on the hands and within three weeks spread to its present proportions.

On examination, the eruption consisted of scaly patches the size of a dollar, barely raised from the surface. They coalesced to form gyrate figures and sheets

enclosing islands of normal skin. The color was reddish fawn. There were no subjective symptoms, and the patient's general health was intact.

Histologic examination of a preparation from biopsy material showed a thin, loose scale which contained a few islands of parakeratosis. The epidermis was thin over the papillae and in this part showed slight intercellular edema and occasional ballooning degeneration of the cells. The granular layer was discontinuous and thin. Over the papillae the basal layer was broken and indistinct.

The papillae were large and edematous and contained a lymphocytic infiltrate. In the subpapillary corium the blood vessels were surrounded by thin mantles of lymphocytes.

DISCUSSION

DR. H. E. MICHELSON: I noted that this man has a marked degree of ichthyosis, and realizing how easily an artificial dermatitis may develop in patients with this disorder, I am inclined to think that that is what occurred in this case.

DR. THEODORE CORNBLEET: The patient has had the eruption for fifteen months, and there has been no change so far as we could determine. He has had various forms of treatment and has been under the care of two competent physicians, with no relief. No change has been produced by bland therapy. Histologic study seems to justify the diagnosis of parapsoriasis rather than that of ichthyosis. There are islands of normal skin among the involved areas, which does not substantiate the idea of an irritated ichthyosis.

ESTHIOMENE; LYMPHOGRANULOMATOSIS INGUINALE. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN.

Mrs. P. D., a Negress, aged 22, was admitted to the Cook County Hospital on Aug. 13, 1932. She complained of ulceration of the external genitalia, which had begun as a small shotlike lesion on the vulva two years before and had gradually enlarged. She stated that the vulva had been enlarged for the past two years.

The essential pathologic picture consisted of an extensive, sharply defined ulcerative and papillomatous process which affected the left labium majorum and labium minorum, the vestibular walls and the perineum, and extended for from 2 to 3 mm. onto the thigh. The clitoris was markedly enlarged, measuring 5 by 3 by 2 cm. There was a serosanguineous discharge over the entire lesion, but no pain or tenderness was complained of.

A Frei test on Aug. 21, 1932, was slightly positive in twenty-four hours, producing an infiltrated papule 4 mm. in diameter. It reached its maximum size (8 mm.) in forty-eight hours and persisted for ten days. The Wassermann test of the blood was negative, and no Donovan bodies were found. Vaginal smears had revealed no evidence of gonorrhea.

The results of biopsy were as follows: The epidermis showed a moderate degree of intracellular and intercellular edema. The corium was slightly edematous. It contained many distended blood vessels, most of them running perpendicularly to the surface. In places there was fresh hemorrhage into the tissues. Scattered throughout the corium there was a diffuse infiltration of lymphocytes and epithelioid cells. A separate piece of the specimen consisted of necrotic tissue.

LYMPHOGRANULOMATOSIS INGUINALE. Presented by DR. MAX S. WIEN and DR. MINNIE O. PERLSTEIN.

Mrs. C. A., a Negress, aged 47, was admitted to the Cook County Hospital on April 25, 1932. She stated that in 1924 a swelling developed in the left buttock near the anus, which broke down and left a discharging lesion. During the next six years five or six similar, occasionally painful lesions appeared on the left buttock. She had lost 30 pounds (13.6 Kg.) in two years. She stated that she had had night sweats for years, more marked during the past two years. There was no cough.

Examination revealed a tumor about the size of a child's head attached to the uterus. The left buttock was swollen, hard and oval and revealed numerous draining sinuses. Rectal examination was difficult and painful; the mucosa was granular. Roentgenograms showed left supraclavicular infiltration suggestive of tuberculosis, but this was believed to be a nonactive residuum of an old apical infection. A barium enema revealed a complete rectal stricture. The Wassermann test of the blood was negative.

Operation was advised but refused, and the patient left the hospital on May 3, 1932. On July 20, 1932, she returned with bilateral draining sinuses of the buttocks, associated with diarrhea, and subsequently incontinence of feces developed. There was no pain or bleeding on defecation, and no vomiting or abdominal distention.

The essential findings at this time were swelling and infiltration of both gluteal regions. Granulomatous excrescences, varying in size from that of a pea to that of a lemon, were diffusely scattered over both buttocks, and from all a profuse, thick, foul-smelling discharge was draining. Over the left trochanteric region there was a palm-sized, violaceous, infiltrated plaque which was bound down to the underlying tissue and formed a puckered area with two draining sinuses at the margins. Similar grapelike excrescences involved the anus and extended into the rectum. There was bilateral shotty, nontender, inguinale adenitis.

The Mantoux test was strongly positive. Repeated Frei tests had been negative. All the smears and cultures of the discharge were essentially negative for fungi or causative organisms. Inoculation of guinea-pigs revealed no evidence of tuberculosis.

During her stay in the hospital the patient's temperature has ranged between 98.6 and 102 F., and she is becoming more toxic and cachectic.

Biopsy devealed a thickened epidermis and acanthosis at the sides of the lesion, which became thinner and was lost over the center. The specimen was very edematous and was covered by a thin parakeratotic scale on which were many polymorphonuclears.

The corium was very edematous and contained many new blood vessels. The walls of the vessels were thickened and invaded by an infiltrate. The infiltrate involved the entire corium and contained many polymorphonuclears, plasma cells, epithelioid cells and lymphocytes. No giant cells were present.

No tubercle bacilli were found.

NOTE. A Frei antigen prepared from pus from the lesions of this patient gave positive reactions only in cases in which a positive Frei test was obtained with Cole's antigen. Thus, this case was one of lymphogranuloma inguinale, with an existent anergy, as proved by the "cross-testing" described.

DISCUSSION

DR. M. H. EBERT: One hesitates a little to accept the diagnosis of a relatively new disorder on the basis solely of the intracutaneous test, particularly if that test is made with pus from a lesion diluted with physiologic solution of sodium chloride. However, if the original material for the test was obtained from a patient whose condition fulfilled all the clinical requirements of Nicolas-Favre disease and the test proved positive we must accept the diagnosis. I think that the proof is still rather tenuous.

DR. MAX S. WIEN: We have had five patients with lymphogranuloma inguinale under our care. Two of these were men, one a white man, who was shown at the meeting of this society in May, 1931, and the other a mulatto. The Frei material which we used in testing these patients was obtained from Drs. Cole and DeWolf of Cleveland. We have prepared some Frei antigen from material from one of our patients, and this has given the same results as the controlled antigen received from Dr. Cole.

In the first case presented today the condition is an esthiomene, which we have heretofore classed under syphilomas or granuloma inguinale, but the presence of the positive Frei test definitely classifies this as belonging to the lymphogranuloma inguinale group.

In the second case the condition falls into the group classified in the German literature under the heading of the genitorectal syndrome of lymphogranuloma inguinale.

If the primary lesion is on the external genitalia, there is drainage to the regional lymphatics with involvement of the inguinal glands. In men, the classic picture of lymphogranulomatosis inguinale described by Durand, Nicolas and Favre is seen. In women, however, an esthiomene results, and the inguinal glands may or may not suppurate. However, in women, the primary lesion usually occurs not on the vulva but in the vagina or in the cervix, as is the case in syphilis. The lymphatic drainage is therefore to the deeper lymph glands, especially the perirectal and perianal glands, and a pelvimetritis results. There develops a secondary rectal stricture due to external compression by the affected glands as well as to the direct involvement of the lymphatics in the rectal mucosa. Clinically, these patients have constipation and pain on defecation. As the glands suppurate, there is a discharge of pus, blood and feces from the rectum, and an ulcerative proctitis develops.

We have had one patient with just this picture and a positive Frei test who came to autopsy. Postmortem examination, according to Dr. Jaffé, revealed the changes described, which correspond definitely to those of lymphogranuloma inguinale as it occurs in the female.

In addition to the ulcerative proctitis, a rectovaginal fistula may develop, and owing to the suppurative perianal glands, suppurating sinuses and a fistula in ano may develop on the buttocks. With progression of the process without healing fibrosis, cachexia and death may result.

DR. M. H. EBERT: Did I understand that Dr. Wien thinks that the Frei test has no effect — if it is positive one accepts it and if it is negative one disregards it?

DR. MAX S. WIEN: According to Nicolas, the Frei test is not 100 per cent positive. The intensity of the reaction depends on the involvement of the glands as compared with the involvement of the skin. In cases of elephantiasis of the genitalia in which there is no actual suppuration from the skin there may be a negative Frei test. A negative test also occurs at times in the presence of florid syphilis, cachexia or ulcus molle. Thus, a negative Frei test may mean an existing anergy. In the second patient presented here the Frei test was repeatedly negative. The histologic sections did not show the picture of syphilis or of tuberculosis. Inoculation of guinea-pigs gave negative results for tuberculosis.

LYMPHOGRANULOMATOSIS INGUINALE. Presented by DR. E. P. ZEISLER and DR. M. R. CARO.

L. W., a Negress, aged 52, noticed a boil on the inner surface of the right thigh about sixteen months ago. Soon a similar lesion appeared opposite it on the left thigh, and the eruption spread upward to the inguinal fold on each side. For about nine months the eruption has remained stationary. On examination it consisted of a palm-sized patch on the inner surface of each thigh extending down from the inguinal folds. Each was an erythematous, deeply infiltrated mass containing many deep sinuses, from which pus exuded on pressure. There was slight tenderness to pressure.

The Wassermann test of the blood was negative. The Frei test became positive only at the end of a week. A Frei test made two days ago is now positive. The Mantoux test was positive with 1:10,000 tuberculin.

Histologic examination of a biopsy specimen taken from the edge of a sinus showed an edematous epidermis and an edematous corium filled by an infiltration which was most dense above. Near the epidermis it contained many polymorphonuclears with fewer lymphocytes, plasma cells and eosinophils, while lower down there was a predominance of lymphocytes and epithelioid cells. There were many new blood vessels, and the larger vessels showed thickening and infiltration of the wall. No giant cells or tubercle bacilli were found.

DISCUSSION

DR. M. R. CARO: The most interesting feature, aside from the atypical location of the lesions, is that the first Frei test did not become positive until the seventh day, and that the second test became positive in forty-eight hours.

DR. RUBEN NOMLAND: Has inoculation of guinea-pigs been tried in order to rule out tuberculosis?

DR. M. H. EBERT: The patient looked tuberculous to me.

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY AND SYPHILIS

LOUIS A. CHARGIN, M.D., *Secretary*

Regular Meeting, Nov. 4, 1932

A. BENSON CANNON, M.D., *Chairman*

A CASE FOR DIAGNOSIS (LICHENOID SARCOID?). Presented by DR. DAVID SATENSTEIN.

The patient was previously presented before the New York Dermatological Society on Oct. 25, 1932.

Microscopic findings since the previous presentation showed lichenoid sarcoid. The tuberculin test gave negative results with dilutions of 1:1,000,000 and 1:100,000; with dilutions of 1:10,000 and 1:5,000, it was one plus. The Wassermann test of the blood was negative. Urinalysis showed occasional white blood cells. The patient gave a history of having taken cinchophen.

DISCUSSION

DR. HERMANN FEIT: I have seen several cases of lichenoid sarcoid in Copenhagen. Clinically, this case does not agree with those. I am under the impression that lichenoid sarcoid is an eruption like disseminated lupus, except for the lichen planus-like appearance. In this case, nearly every lesion is skin-colored, giving the impression of granuloma annulare.

DR. JOSEPH L. MORSE: The case I reported was not like this one, and I do not think that this is lichenoid sarcoid, although the histopathology, according to Dr. Satenstein, fits in with the diagnosis of sarcoid. My case was one of Boeck's sarcoid with typical lesions on the face and extremities; in addition there were lichenoid papules on the back of the neck. These resembled lichen planus closely, and it was only after biopsy that the diagnosis of sarcoid was made.

In reviewing the literature, I found that this combination of Boeck's sarcoid with lichenoid lesions was not so rare as has been thought. About fourteen cases have been reported since Boeck's original article. However, I could find only five cases of lichenoid sarcoid alone without the typical lesions of Boeck's sarcoid. One was reported by Wright and the other by Kissmeyer, both under the title of lichenoid sarcoid. So far as I know, Wright was the first to use the term lichenoid sarcoid.

DR. HERMANN FEIT: The fact that the eruption is arranged symmetrically is interesting; that condition is never found in lichenoid sarcoid, but it occurs in granuloma annulare.

DR. ISIDORE ROSEN: I suggest the diagnosis of granuloma annulare. There is a type of this disease occurring on the trunk which is characterized by small, skin-colored or violescent nodules having a tendency to form patches. If one studies

these patches carefully, annular lesions may be detected. The clinical picture, together with the histologic findings in this case, would be in favor, I think, of granuloma annulare.

LUPUS ERYTHEMATOSUS? Presented by DR. ISIDORE ROSEN.

S. W., a man, aged 43, entered the clinic of diseases of the skin of the New York Post-Graduate Hospital on Sept. 28, 1932, with several carbuncles on the left forearm and enlarged epitrochlear glands. On further examination, it was found that he had several circumscribed areas of alopecia on the scalp, and erythematous, nodular lesions about the angle of the left jaw, under the chin and in front of the left ear. These nodules varied in size from that of a pea to that of a dime. The skin over them was smooth and shiny. They were not painful.

On the vertex and the occipital regions of the scalp were oval and circular-shaped areas with sparse hairs. These patches were pinkish, nonscaly and non-elevated.

The Wassermann test was negative. Microscopic examination showed perifolliculitis. The histology was not characteristic of lupus erythematosus.

DISCUSSION

DR. GEORGE C. ANDREWS, JR.: It is difficult to form an opinion of a case like this in a few minutes of observation. I do not think that all the characteristic features of lupus erythematosus are present. I could not discover on the scalp the dilated follicles and the follicular, horny plugs that one would expect in this disease. I do not believe that a rare condition like the nodular type of lupus erythematosus should be diagnosed in this patient without further proof, as the lesions are not typical clinically or histologically. Clinically, the infiltration in front of the left ear is rather diffuse, and not circumscribed, as in sarcoid. I would suggest that a blood count be done to exclude lymphoblastoma, and that another biopsy be made.

DR. RAY H. RULISON: I think this eruption is that of a rather typical form of lupus erythematosus.

DR. FRANK C. COMBES, JR.: The lesions on the side of the face are probably nodular lupus erythematosus, described by Radcliffe-Crocker, and those on the scalp are probably the same. However, I would not say that the scarring on the scalp is typical of lupus erythematosus.

DR. SAMUEL PECK: There are rare cases in which a typical lupus erythematosus occurs on the face and a sarcoid on another part of the body. This possibility should be borne in mind in this case. In the two patients in whom I saw this combination, there was typical lupus erythematosus on the face. In one, the sarcoid was on the right arm; in the other, it was on the thigh. One of the cases was especially interesting because the intradermal tuberculin test tended to be negative in the vicinity of the sarcoid and became more strongly positive the farther away it was from the lesion. It seems to me that only a biopsy will prove whether the lesion in the case presented is a sarcoid.

A CASE FOR DIAGNOSIS (POIKILODERMA [CIVATTE]?). Presented by DR. EUGENE TRAUB.

M. K., a single woman, aged 38, was shown at a meeting of the New York Dermatological Society on Oct. 25, 1932. Since then a histologic examination has been made. The first section was taken from a white area and showed an epidermis that appeared to be normal except for swollen nuclei of the basal cells. Edema of the upper corium was present. The blood vessels were surrounded by round cell infiltration.

The second section, taken from a normal or slightly pigmented area of the neck, showed an epidermis that was almost normal. In this area there seemed to be numerous small rete plugs very close together. A slight amount of pigment was

present in the basal cells. Some of the collagen fibers took on a basophilic tinge. There was slight round cell infiltration about the blood vessels. With the hematoxylin-eosin stain, the changes were found to be similar to those seen in a weathered skin. It was impossible to say whether the numerous rete plugs were close together as the result of an artefact, or whether there was an actual change.

DISCUSSION

DR. EUGENE TRAUB: It is difficult to arrive at a final opinion in many of the cases in the poikiloderma group. This is especially true in this case of Civatte's type, as the condition is exceedingly rare in this country. On the other hand, Graham Little on two occasions reported a total of eleven cases, and he believes that the condition is fairly common in Europe. The essential diagnostic features consist of a symmetrical eruption involving most commonly the face and neck and less frequently the upper extremities. The eruption is characterized by a mottling consisting of a background of pigmentation, with frequently some telangiectasia and white spots or lighter skin areas dispersed throughout. The involved skin often shows slight atrophy, but Graham Little states specifically that the white spots are not atrophic. The disease is most frequently seen in women and generally about the time of the menopause, though a number of cases have been reported in younger women, and one case has been reported in a man. The onset of the disease is sometimes fairly rapid, though in other cases there has been a gradual extension over a period of years. It is generally resistant to treatment, although Graham Little reports success with the use of glandular extract, particularly that of the suprarenal gland. A section taken partly through a white area and partly through the pigmented portion of the skin showed an epidermis that was thin, but otherwise apparently normal.

DARIER'S DISEASE. Presented by DR. FRANK VERO.

C. A., a white man, aged 38, born in Greece, was referred to the clinic of diseases of the skin of the New York Polyclinic Hospital on Oct. 4, 1932. He gave a history of a recurrent eruption of twenty-one years' duration, which had affected the left side of the abdomen and chest and the left arm. Three months prior to presentation, following a sunburn, he noticed a rash on the left side of his back. He complained of soreness and itching.

Physical examination showed nothing significant except on the left side of the chest, abdomen and back and the left arm, where there were numerous discrete and grouped elevated papules, varying in color from reddish-yellow to brown and ranging in size from that of a pinhead to that of a millet seed. Some of the lesions were covered with a fine scale; others were covered with crusts. Numerous small, irregularly outlined pigmented and depigmented areas were present on the site of former lesions. There were also a large number of elevated, flat-topped and verrucous confluent papules varying in size from that of a pea to that of a lentil, in bandlike arrangements and irregular plaques, some of which were covered with a yellowish-brown, greasy crust. They were surrounded by an erythematous scaling area, probably due to the application of iodine.

Biopsy of a specimen taken from the back showed hyperkeratosis and dyskeratosis, with a few *corps ronds* (round bodies) and grains in a disorganized epidermis, and a perivascular infiltration in the corium.

DISCUSSION

DR. FRED WISE: I cannot accept the diagnosis of Darier's disease in this case. I believe that the condition is a unilateral verrucous nevus.

DR. J. FRANK FRASER: The gross appearance of the lesions does not conform with that of Darier's disease. The histologic picture, however, is typical of this disease. There are the *corps ronds*, the Darier fissures and the papillary-like epithelial formations below the fissures. These features, in my opinion, establish the diagnosis of Darier's disease.

DR. HERMANN FEIT: I saw this case first histologically. If one takes into consideration that Darier's disease is a nevus, the unilateral distribution can be understood. I would like to learn from Dr. Wise in what type of nevi *corps ronds* are found.

DR. PAUL GROSS: I think that the unilateral distribution is of no diagnostic importance. In this case there are typical lesions and typical histologic observations, and I subscribe to the diagnosis of Darier's disease.

DR. SIGMUND POLLITZER: The histologic picture of Darier's disease is well described by the name which Darier originally gave it—psorospermosis follicularis vegetans. He derived the name from the presence of double-contoured bodies which competent protozoologists regarded as psorosperms. The lesions were located mainly around the follicles, hence the term follicularis. The term vegetans was introduced to indicate a tendency of the epidermis at the lower border to marked proliferation. All those features are found in these sections. It may be of interest to note that at the last international congress in Copenhagen, Darier dwelt amusingly on the fact that it is known today that his disease, originally described in 1899, is neither a psorospermosis, nor is it limited to the follicles, nor is it truly vegetating.

DR. FRANK VERO: Both nevus unius lateralis and keratosis follicularis were suggested. Lichen planus was likewise suggested because of the flat, solitary and grouped papules on the arm and shoulder. In view of the history and course, i. e., spontaneous remissions and exacerbations, the final diagnosis of keratosis follicularis was made. This diagnosis was sustained by the findings of the biopsy. I found cases of this type reported in the literature by Malinowsky, R. C. Jamieson, Biberstein and others.

DERMATOSIS PAPULOSA NIGRA? Presented by DR. E. WILLIAM ABRAMOWITZ.

D. B., a single woman, aged 29, born in the United States of Russian Jewish parents, is presented from the New York Post-Graduate Skin Clinic. There has been no condition similar to hers in her younger sister or in her parents. About two years prior to presentation, she noticed the development of an eruption on her face. Her face showed slightly elevated, brownish, smooth, papular lesions the size of a pinpoint, which were isolated, with no linear arrangement. There had been no itching. The lesions were scattered for the most part on her cheeks; a few were present on her temples. She also had had a few blackheads. The trunk and extremities showed no eruption. The patient had received protiodide pills, on the assumption that the lesions might be flat warts. In addition, four injections of bismuth and three of arsenic and four fractional doses of roentgen rays had been given, without benefit. The case had been diagnosed and treated at a clinic of diseases of the skin as acne vulgaris. The eruption conformed to the description given by Castellani (ARCH. DERMAT. & SYPH. **18**:393 [Sept.] 1928), by Michael (ibid. **20**:629 [Nov.] 1921) and, last year, by F. A. Diasio, all of whose cases occurred in Negroes.

DISCUSSION

DR. GEORGE C. ANDREWS, JR.: I think this patient has juvenile flat warts. There are some typical filiform warts on the right side of the neck, and the other lesions on the face are typical of flat warts. The patient told me that they change in appearance from time to time, new lesions developing and old ones disappearing. Dermatosis papulosa nigra was described as a form of nevus and does not change in appearance in this manner. The resistance of this case to therapy is not opposed to a diagnosis of flat warts.

DR. FRANK C. COMBES, JR.: I agree with Dr. Abramowitz' diagnosis, if there is such a condition distinct from a nevus. One who sees a large number of Negroes frequently encounters these lesions. I have always regarded them as an ectodermal nevus. In the colored race they are naturally much darker than in this patient because of the greater pigmentation. The reticulated depressed areas on the cheeks

are interesting. The patient gives no history of acne, and these scars do not look like the scarring of ordinary acne.

DR. E. WILLIAM ABRAMOWITZ: I saw this girl several times during this year and I can say that no new lesions have appeared and none have disappeared. They are not flat warts; flat warts have a tendency to form linear or grouped lesions. The patient presents dome-shaped, isolated papules, not as black as occur in the Negro, because she is of the white race. Castellani reported one previous case similar to this one. It occurred in a European living in Jamaica.

A CASE FOR DIAGNOSIS (ECZEMA?). Presented by DR. I. M. LASHINSKY.

A man, aged 64, born in the United States, was presented from the New York Post-Graduate Skin Clinic, with lesions which began as small spots and gradually enlarged. The oldest lesions remained stationary for a number of years.

Examination showed on the face erythematous papules the size of a pea; there was some scaling. On the upper and lower extremities were papules the size of a pinhead and of a pea, or larger, most of which were bluish red and very pruriginous. On the back, below the left scapula, were two oval lesions about 3.2 cm. in size, which were definitely infiltrated and raised above the surface. The lesions were partly covered with crusts. On the left thigh was a similar lesion about the size of a palm, but made up of single and grouped papules of the character first described. The large lesions were bluish red and sharply circumscribed. On the legs were a number of coin-sized lesions of the same character as the larger lesions described.

The Wassermann test of the blood was negative. The blood count showed 2 per cent eosinophils. Urinalysis gave negative findings.

Biopsy of tissue taken from the large lesion on the back showed marked acanthosis, a moderate amount of hyperkeratosis and slight parakeratosis. In the middle layers of the epidermis, as well as along areas in the basal layer, there was edema of the intracellular type. There was little evidence of spongiositis. In the upper and middle layers of the cutis was marked perivascular infiltration composed mainly of lymphocytes with some leukocytes.

Biopsy of tissue taken from the small lesion on the left arm showed practically the same features as the first biopsy, but to a lesser degree. The elastica in the older lesions showed fragmentation in the papillary body.

DISCUSSION

DR. SAMUEL PECK: There is a possibility that the case is one of prefungoid mycosis fungoides.

DR. SIGMUND POLLITZER: The slides show an indefinite chronic inflammatory condition. I could not make a diagnosis from the slides nor can I make a clinical diagnosis.

DR. ISIDORE ROSEN: I think it worth while to describe the lesions that were present when the patient was first seen. At that time he had sharply outlined, infiltrated, brownish-red lesions suggesting clinically tumors of the lymphoblastoma group. They had no resemblance to psoriasis or to eczema. They were disseminated especially over the back, thighs and inguinal regions, the areas varying in size from that of a twenty-five cent piece to large patches, and itching was a marked symptom. The patient's nails showed changes strongly suggestive of psoriasis.

DR. I. M. LASHINSKY: The original lesion appeared on the thigh about ten years ago and was stationary until a year ago. New lesions then developed in the patient. When examined at the clinic, the lesions were all infiltrated. A diagnosis of the prefungoid stage of mycosis fungoides was entertained. After tissue for biopsy had been taken, the lesion shrank in size. It is noteworthy that the papules on the thigh, when last examined, were not so marked as they appear at present, and they were flat. The question whether we are dealing with a type of neurodermatitis or a type of Bowen's disease also arises.

ERYTHRODERMA WITH POSITIVE REACTIONS OF THE SKIN TO ARSENIC. Presented by DR. E. WILLIAM ABRAMOWITZ.

The case was presented before the section on Jan. 5, 1932, as one of erythroderma caused by bismuth, but it was found that the skin reacted positively to arsenic only.

A series of patch tests were performed on Oct. 26, 1932, which showed these results after having been in place for forty-eight hours: suspension of bismuth, negative; peanut oil, negative; bismuth salicylate, negative; neoarsphenamine, 2 per cent negative; bismuth oxychloride, negative; solution of potassium arsenite, 2 plus; salicylic acid, negative; hydrous wool fat, negative; corrosive mercuric chloride, 1:1,000, negative; bismuth metal, negative; red lead prime, 3 plus; metallic red, negative; dark green, 3 plus; graphite, negative; neoarsphenamine powder, 1 plus.

A communication received from the Maryland Casualty Company showed that an analysis had been made of the various paints that the patient had used. Reports were as follows:

Red lead prime showed 1.50 mg. of arsenic in 100 Gm. of paint; dark green (pea green) showed 1.25 mg.; graphite, 0.125 mg., and roof (metallic red), 1 mg.

DISCUSSION

DR. E. WILLIAM ABRAMOWITZ: The first time I presented this case, the patient showed what was recognized by all as an exfoliating dermatitis of a severe type, which I thought had been brought on by bismuth; some thought it was caused by arsenic. Later, the skin tests on three different occasions showed a positive reaction to a solution of potassium arsenite. Controls showed negative reactions. Although the skin was not entirely normal, the positive and negative readings could be judged clearly. The dermatitis is improving slowly. The skin is red and scaly, but not to such a marked degree as formerly. The palms are still thickened, and it is still difficult for the patient to open his hands. There was no histologic evidence of pityriasis rubra and no evidence of tuberculosis. Several blood counts were practically normal, thus excluding, to a certain extent, the lymphoblastomas.

A history has since been obtained from the patient which reveals that, previous to the outbreak, he was handling paints. The red and green paints were analyzed and were found to contain arsenic. The patient returned to the clinic a week ago, and the skin tests were repeated. There was a positive reaction to the red and green paints and to a solution of potassium arsenite. Controls gave negative reactions. Only one test was made for arsenic in the urine; it gave negative results.

Dr. Osborne, of Buffalo, did a microchemical test for arsenic in the skin. This also gave negative results. Unfortunately, these examinations were made after the patient had had considerable treatment with thiosulphates. In view of the history of painting and the consistently positive patch tests for inorganic arsenic, I believe that the patient's condition is an exfoliating dermatitis caused by contact with paints containing arsenic.

DR. ISIDORE ROSEN: This patient had a typical discoid type of lupus erythematosus of the face and scalp when he was first seen, and these lesions had entirely healed a few weeks after the appearance of the generalized eruption.

DR. CHARLES WOLF: When the case was previously presented, I suggested pityriasis rubra of Hebra as a diagnosis. To confirm that diagnosis at the present time would be rather difficult. The patient is still alive. At the time when he was first presented, he was very ill. Pityriasis of Hebra may persist for months or years. The patient has atrophy occurring in certain parts of the body; it remains to be seen whether he will be cured. The fact that the condition has persisted so long does not rule out the possibility of pityriasis rubra of Hebra.

DR. PAUL GROSS: Did the patient handle the paints shortly before the skin condition appeared or long before?

DR. E. WILLIAM ABRAMOWITZ: It was difficult to get an accurate history from the patient. The history cited by Dr. Rosen was correct as to the information

obtained in the clinic at that time. It later developed that the patient had had an itching on the face before he received any injections of bismuth, and for that reason he decided to present himself. The lupus erythematosus on the face he had had for eighteen years, and it did not seem to annoy him. I saw him after the third injection of bismuth, when the pruritus was severe and the usual premonitory lesions of erythroderma were developing. The itching developed about two to three weeks after he had done a considerable amount of painting.

LUPUS ERYTHEMATOSUS AND EPITHELIOMA. Presented by DR. ISIDORE ROSEN.

M. S., a woman, aged 74, born in Italy, presented herself at the New York Post-Graduate Skin Clinic on Oct. 5, 1931, with scaly, erythematous patches on the forehead and the bridge of the nose of two months' duration.

Her history was without significance. There had been no tuberculosis in the family, and roentgen examination of the chest showed no evidence of tuberculosis.

Examination showed well defined, erythematous, slightly raised, indurated patches on the forehead, the bridge of the nose and the upper lip, to the right of the midline. These patches were the size of a quarter. There was some fine, grayish scaling on the lesions. Numerous senile warts were seen on both cheeks, one at the upper margin of the patch on the right cheek.

The patient had received eleven weekly intramuscular injections of bismuth salicylate in 1.5 cc. doses. The bismuth therapy gave poor results and was therefore discontinued. The patient used a bismuth ointment, and the condition then improved slightly. She also used a colloidal copper ointment for the lesions on her face, with some benefit, but one month prior to presentation, the keratosis on her right cheek became elevated and somewhat larger. At the time of presentation, she was receiving injections of a gold preparation. The patient was tested with graded dilutions of tuberculin, and the following reactions were obtained forty-eight hours later: 1:1,000,000, negative; 1:100,000, negative; 1:10,000, negative; 1:5,000, negative; 1:500, slight erythema; 1:100, negative. Microscopic examination of tissue taken from the right cheek confirmed the diagnosis of lupus erythematosus. Microscopic examination of tissue taken from a senile keratotic lesion showed early malignancy of the prickle cell type.

DISCUSSION

DR. HERMAN FEIT: I do not see why a patient of this age should not have a degenerating, senile keratosis independent of lupus erythematosus.

DR. CHARLES WOLF: How long has the patient had lupus?

DR. ISIDORE ROSEN: The patient has had lupus for two months.

DR. CHARLES WOLF: It is rather unusual for a person to develop lupus erythematosus at such an advanced age, is it not? The lesions on the forehead are infiltrated and diffuse; the possibility of sarcoid should be considered.

DR. ISIDORE ROSEN: I did not see any infiltrated patches on the forehead. What I saw were typical scaly lesions of lupus erythematosus. The observations of the biopsy are typical of lupus erythematosus. I am not aware that lupus erythematosus develops at any particular time. It develops in adults generally after the age of 45.

DR. SAMUEL PECK: This case is interesting because of the possibility of light being the precipitating factor in both the lupus erythematosus and the malignancy. We know that persons who are exposed a great deal to strong ultraviolet light, such as farmers and sailors, develop senile keratoses in the exposed areas. It is also known that light plays an important rôle in the development of lupus erythematosus. This Italian woman worked on a farm for many years. Her peculiar predisposition to lupus erythematosus and the fact that she has a number of senile keratoses strongly suggest light as a precipitating factor in a susceptible soil.

GRANULOMA (POSSIBLY DUE TO FUNGI). Presented by DR. DAVID BLOOM.

The patient was presented before the section on Oct. 4, 1932.

DR. DAVID BLOOM: Further bacteriologic and mycologic examinations, carried out by Dr. J. Gardner Hopkins did not demonstrate fungi. Inoculations of guinea-pigs also gave negative results. Repeated biopsies of tissue taken from the border of the lesions did not show any changes other than those described at the last meeting. No other double-contoured cell could be found on any of the slides.

The improvement of the lesions following the administration of potassium iodide lasted only a few days; the lesions then became worse, discharged more pus and seemed to extend peripherally. The potassium iodide was therefore discontinued, and autogenous vaccine was given instead.

On the basis of these observations it would appear that the disease is an unusual type of staphylococcic infection of the skin in a patient of low general resistance.

LICHEN NITIDUS. Presented by DR. MAX SCHEER.

H. R., a woman, aged 24, born in the United States, first visited the New York Post-Graduate Hospital Clinic on Jan. 10, 1932. She had had an eruption for several months. The lateral side of the upper part of the left arm presented a sharply defined, light-colored patch about 8 cm. long and 4 cm. wide. The patch was composed of tiny papules.

Microscopic observations suggested a tuberculid.

The patient was distinctly hypersensitive to tuberculin, reacting to old tuberculin injected intracutaneously in a dilution of 1:1,000,000.

The patient had received gold sodium thiosulphate and generalized ultraviolet ray therapy, with slight improvement, and had also received viosterol 10 D.

Examination of the urine showed many bacteria. Roentgenologic study of the chest showed status phthisicus. Patch tests with tuberculin gave positive results.

METASTATIC MELANOMAS OF THE SKIN FOLLOWING ENUCLEATION OF THE LEFT EYE FOR SARCOMA OF THE CHOROID. Presented by DR. OSCAR LEVIN.

B. M., a man, aged 52, who was born in Poland and has lived twenty-two years in the United States, a presser by occupation, came to the Beth Israel Hospital eleven days prior to presentation. There had been no loss of weight. Two years prior to presentation, the left eye was enucleated for sarcoma of the choroid. Examination showed only a pigmented, raised tumor about the size of a small cherry on the occipitoparietal region of the scalp. It was of ten months' duration.

Scattered over the trunk were about a dozen small, flat and elevated black lesions varying in size from that of a grape seed to that of a bean. These lesions were barely perceptible in places and appeared just slightly black through the overlying epidermis. In other places they were larger, slightly elevated, rounded, smooth tumors. The largest varied in size from that of a pea to that of a bean, and were sharply defined, elevated, globular, smooth and black. Examination of the urine showed the presence of melanin. Roentgen examination of all the bones showed no evidence of metastases. Examination of the chest showed marked thickening and calcification of the pleura of the left lower lobe, but there was no evidence of pulmonary metastasis. Roentgen examination of the skull revealed no abnormalities.

LUPUS ERYTHEMATOSUS AND SCLERODACTYLIA. Presented by DR. VAN ALSTYNE CORNELL.

J. D. R., a man, aged 25, born in the United States of Italian parents, presented himself at the New York Post-Graduate Skin Clinic on June 1, 1932, with areas of alopecia on the central, frontal and postauricular areas of the scalp. These areas showed scarring and scaling; the follicles were patulous. The patient also presented well defined, scaly, erythematous patches over the cheeks. The eruption

on the face and scalp developed about a week after an attack of erysipelas. The duration of the eruption had been three years. The lesions on the hands had appeared at about the same time.

On the outer upper aspect of both arms were infiltrated erythematous papules the size of a pinhead, which were painful on pressure. Some of these papules showed central scarring. The joints of all the fingers were swollen and tender, which made it impossible for the patient to flex the fingers. Around some of the joints were well defined lesions the size of a pea, which appeared glistening and of an ivory color.

Roentgen examination of the hands showed a rather marked hypertrophic change at the insertions of the tendons, especially in the phalanges. The somewhat stocky appearance of the small long bones suggested a slight growth disturbance of pituitary origin.

Roentgen examination of the chest revealed discrete foci of tubercles at the hilus and right central part of the pulmonary field, with moderate thickening of the secondary root branch and of the central part of the bronchi.

Photographs taken of the face showed the extent of the lesions. The patient received eighteen weekly injections of 50 mg. of gold sodium thiosulphate. At present he is able to flex his fingers, and the swelling of his joints has diminished considerably. He is still receiving treatment with the gold preparation.

The Wassermann and Kline tests gave negative results. The patient was tested with graduated dilutions of tuberculin and the following reactions were obtained after a lapse of forty-eight hours: 1:1,000,000, negative; 1:100,000, negative; 1:10,000, two plus; 1:5,000, three plus.

Microscopic examination of tissue taken from the left arm showed an exudative inflammatory process, but nothing suggestive of lupus erythematosus. Specimens for biopsy were not obtained from the lesions of the fingers, face or scalp.

SYPHILIS AND TUBERCULOSIS? Presented by DR. OSCAR LEVIN.

B. W., a woman, aged 20, a native of the United States, applied for treatment at the Beth Israel Hospital three weeks prior to presentation, for ulcers of the right thigh. She had been treated at the Montefiore Hospital for tuberculosis of the right hip two and a half years prior to presentation. A clinical diagnosis of chronic fibroid tuberculosis was made, but roentgen examination of the lungs, pelvis, spine and right hip failed to confirm the diagnosis at that time. The patient had been in the Jewish Hospital in Brooklyn in 1920, where a diagnosis of acute suppurative arthritis had been made, and incision and drainage were performed. A culture at that time showed hemolytic streptococci. In 1925 and 1926 the region of the right hip became reddened and swollen. In 1928 there was a recurrence of the condition at the same site, which again was treated by incision and drainage. In 1925 the patient began to suffer from frequent colds, coughing, sore throat and weakness, and she had a frank hemorrhage from the lungs. There were, however, no tubercle bacilli in the sputum. An artificial pneumothorax was performed in 1925.

On her readmission to the Montefiore Hospital in 1928, shortly after she had been discharged from that institution, her temperature ran a febrile course, showing an irregular curve up to 101 F. and, occasionally, up to 104 F. She coughed up blood on several occasions. A positive diagnosis of tuberculosis of the lungs was not made, since examination of the sputum showed an absence of tubercle bacilli, and further roentgen examination, as well as the physical findings, failed to reveal active tuberculosis. She was sent to a sanatorium because of mental symptoms developing as a result of localized pachymeningitis of the lumbosacral cord, and possible tuberculoma with abscess of the brain. However, the patient gradually improved.

Several years before presentation, the Wassermann reaction was reported as one plus. The patient has been under the observation of the social service department of the Montefiore Hospital since her discharge from that hospital, and has

been referred to the presenter for the ulcers of the skin accompanying possible pulmonary tuberculosis and tuberculosis of the right hip.

Physical examination revealed about half a dozen sharply defined, punched-out ulcerations with centrally located slough tissue and an erythematous border on the external aspect of the right thigh. These were slightly tender. Surrounding the lesions was a vesicular dermatitis, which was caused by external applications. Microscopic examination of a specimen of the skin revealed that the epidermis was normal in one half of the specimen, while in the other half the papillae were obliterated and the epidermis was edematous. The cutis under that portion was also edematous. There was a large edematous area, which was densely infiltrated with leukocytes. The blood vessels were distended. Under the other half of the specimen, the cutis was dense, with thick fibers. There were accumulations of plasma cells and other mononuclear elements near the sweat glands, which appeared astonishingly near the surface. There was one hair follicle, which showed nothing unusual. The underlying fatty tissue was inflamed. There was nothing specific in the whole picture. A diagnosis of "old and recent inflammation in the skin" was made.

Roentgen examination of the chest showed a localized proliferative lesion in the basal and axillary portion of the right upper lobe. The proliferative change was manifested by a calcareous deposit. There was a similar small lesion in the right apex. No exudative lesion was found in either lung. There were no pleural changes. There was no deviation of the trachea, heart or mediastinum.

A roentgenogram of the hip showed that there was no tuberculous arthritis. It revealed: marked tilting of the pelvis, probably caused by scoliosis; slight atrophy in the greater trochanter, somewhat more marked on the left side; a localized collection of air in the soft tissue external to the greater trochanter on the left side, which may have been a sinus from the greater trochanter.

Examination of the urine gave negative findings for bromides. The Wassermann reaction was two plus. A smear from the ulcer of the thigh showed many pus cells, diphtheroid bacilli and a few cocci. The culture revealed staphylococci. The inoculation of guinea-pigs had not been completed.

The patient had five injections of bismuth intramuscularly. There was almost 60 per cent improvement; some of the ulcers healed entirely, while the others showed rapid improvement and healing.

LOUIS A. CHARGIN, M.D., *Secretary*

Regular Meeting, Dec. 5, 1932

A. BENSON CANNON, M.D., *Chairman*

SYPHILIS (REINFECTION). Presented by DR. LEO SPIEGEL.

A. S., a man, aged 31, single, born in Hungary, who has been in the United States for seven years, had a penile sore in October, 1928. Dark-field examination showed Spirochaeta pallida. He received ten intravenous injections of arsphenamine, ten intramuscular injections of a bismuth compound and ten injections of a mercurial compound. The last treatment was given on Nov. 20, 1928.

The patient first came to the dispensary of the Lenox Hill Hospital on Dec. 15, 1928. Examination at that time revealed a pea-sized scar on the shaft of the penis. There were no palpable inguinal glands. The Wassermann test of the blood was negative with two antigens. The spinal fluid was normal. From Dec. 27, 1928, to Dec. 2, 1929, he received three courses of treatment consisting of thirty-two intramuscular injections of bismuth and eleven intravenous injections of silver arsphenamine. The Wassermann test of the blood was negative on six subsequent occasions, the last being on Oct. 9, 1931. A second examination of the spinal fluid, on April 9, 1930, also gave negative results.

The patient returned, after almost thirteen months, on Nov. 12, 1932. He had received his last treatment on Dec. 2, 1929, thirty-five months before. He complained of a sore on the shaft of the penis which had been present for about ten days. He stated that he had been exposed to infection six or seven weeks previously.

Examination showed on the shaft of the penis near the corona a well defined, slightly infiltrated round lesion about 1 cm. in diameter, covered by an adherent crust. The scar of the previous infection was about 6 cm. from this lesion. Dark-field examination showed numerous spirochetes (S. pallida). There were no palpable inguinal glands. The Wassermann test of the blood was negative with two antigens; the slide precipitation test was positive with both diagnostic and exclusion antigens; the spinal fluid was normal.

DISCUSSION

DR. LEO SPIEGEL: I believe that this case satisfies the criteria of reinfection as outlined by Stokes and co-workers in their thorough study, "The Clinical Concept of Reinfection in Syphilis" (ARCH. DERMAT. & SYPH. **23**:829 [May] 1931). From the clinical standpoint the seventeen requirements for reinfections of grade 1 as classified in this article were fulfilled, with possibly three exceptions. I shall not state all of the requirements, as it would consume too much time. However, three criteria, as stated, may not be fulfilled in this case. One is the first requirement that "the original infection must be proved either by positive dark-field examination or by definitely positive Wassermann reaction of the blood." The latter part of this requirement is lacking, since a positive Wassermann reaction was not reported by the original observers. The second is Stokes' seventh requirement that "a demonstration of the infectious condition of the supposed source of infection must be had by confrontation if possible." To fulfil this requirement is difficult, especially with this patient, who says that he has engaged in promiscuous sexual intercourse. The third is the seventeenth requirement that "both infections should have been observed by the same competent physician or by two competent physicians, modern methods of examination being employed." Part of this criterion has been satisfied since the patient came under observation shortly after the first infection, while the scar was in evidence, and the scar of the second infection is remote from that of the first. I wish to stress a point which is well shown in this case, namely, that reports submitted from a laboratory should include the results of a precipitation test besides that of the routine Wassermann test, because the newer tests are considerably more sensitive and often confirm the results of dark-field examination when the complement-fixation reaction is negative.

DR. HERMAN GOODMAN: I am a purist in judging reinfection with syphilis. The criteria are definite. The first is the requirement that there be evidence that the patient had a prior infection. The observing physician should have proof of this. The patient should have been exposed to infection; the proper incubation period should have passed; the patient should have shown a clinical chancre with demonstration of spirochetes; the regional nodes should have been enlarged, and the Wassermann test of the blood which was negative at first should have become positive.

In the case under consideration, I doubt that these criteria have been fulfilled.

DR. A. BENSON CANNON: I have not studied the case carefully, but from the history presented here and the comments already made, I think that there may be doubt as to the presence of reinfection. I have studied reinfection rather extensively during the past few years, and among eighteen cases I was surprised to find that there was doubt about the reinfection in each case when it was carefully analyzed. More recently I had a private patient who met, I thought, all the requirements of reinfection. He had a primary lesion and secondary lesions, dark-field examination showed spirochetes, and the Wassermann reaction was positive. He received antisyphilitic treatment, and the reaction remained negative for seven years, a test being made once or twice a year. The Wassermann test of the spinal fluid

was also negative. A few months ago an ulcer of the rectum developed six weeks after exposure to infection. The first primary lesion was on the penis. The Wassermann test of the blood, which had been negative several times, gradually became strongly positive. Dark-field examination of the lesion and of aspirated inguinal glands showed spirochetes. A section of the ulcer showed the pathologic picture of chancre. A scant macular eruption developed on the body. All the symptoms disappeared under antisyphilitic treatment. While this case apparently met all the requirements for a diagnosis of reinfection, one cannot help wondering why, if it was a case of reinfection, one does not more often see equally typical cases.

DR. LEO SPIEGEL: One must accept the report of a licensed laboratory. I admit that reports on dark-field examinations are often questionable and should not be accepted from unauthorized laboratories.

LICHEN PLANUS ATROPHICUS. Presented by DR. E. WEISE.

E. J. S., an Indian, aged 36, states that his eruption began six months ago as a fine papular rash which itched intensely at first.

On examination scattered over the sides of the face, on the ears, across the shoulders and on the extensor surfaces of the arms and forearms were slightly scaly, pale red macules. Many lesions were discrete; others were confluent, forming bizarre shapes. Practically all the lesions showed atrophy with a sharply demarcated hyperpigmented border. Some of them, especially on the right forearm, showed keratotic plugging. On the backs of both hands were elevated brownish papules varying in size from that of a pinhead to that of a pea, some of which suggested a linear arrangement. There were a few flat, shiny papules on the right side of the neck. There were no lesions in the mouth or on the penis.

A biopsy specimen from the forearm showed hyperkeratosis with follicular plugs. The granular layer varied but was widened in certain areas. There was a narrow band of edema and dense lymphocytic infiltration in the papillary and subpapillary layers of the corium extending down about the plugged follicles. A questionable diagnosis of lichen planus was made.

A specimen from the hand showed marked hyperkeratosis. The granular layer was wide in places. The basal layer was markedly frayed. A band of edema and lymphocytic infiltration was present beneath the epidermis. A diagnosis of lichen planus was made.

DISCUSSION

DR. ISIDORE ROSEN: I think that this is a unique case, and I agree with the diagnosis as presented. At first glance, the condition gives the clinical appearance of lupus erythematosus, especially on account of the size of the lesions and their distribution on the face and scalp.

DR. HERMANN GOLDENBERG: I agree with the diagnosis.

DR. HERMAN GOODMAN: Has the patient been given arsenic?

DR. E. WEISE: It has been difficult to get the history from the patient. He states that he has received no medication.

DR. J. GARDNER HOPKINS: An interesting feature is that in some white areas where the epidermis is atrophic there is keloidal thickening of the cutis. This is rare in lichen planus.

DR. HERMANN FEIT: This case was considered first as one of lichen planus atrophicus, although some of the lesions resemble those of lupus erythematosus. When one observes the lesions from the back of the hand up the arms and over the neck and scalp, they are all of the same type, in different stages of evolution and involution, followed by atrophy. From the appearance of the lesions the condition might be lupus erythematosus discoides, which I have never seen involving the whole body. The bluish-red color, typical of lichen planus, the itching and the results of biopsy seem to substantiate the diagnosis of lichen planus atrophicus.

GRANULOMA; POSSIBLY DUE TO FUNGI (?). Presented by DR. DAVID BLOOM.

This patient was presented before the section in October, 1932.

Because all the investigations have given negative results, particularly for fungi, and because when the medication with iodides was continued the lesions became worse, my associates and I have come to the conclusion that our first provisional diagnosis was correct, namely, staphylococcic infection in a patient in poor general condition.

Under treatment with autogenous vaccine, intramuscular injections of a non-specific milk preparation, an iron compound, arsenic and liver extract, and dressings of mercuric chloride (1:10,000 and 1:5,000 solutions), the condition has improved considerably. The lesion on the right hand is almost healed, and the lesions on the feet have shown marked improvement.

This condition is described in the literature under the name of pyodermia chronica serpiginosa. It is of interest that George Henry Fox presented in 1901 before the New York Dermatological Society a case (perhaps the first) of a similar eruption on the back of the hand. Dr. Fordyce suggested the diagnosis of streptococcic pyodermia and Dr. Whitehouse that of staphylococcic pyodermia.

MULTIPLE BENIGN SARCOID OF BOECK. Presented by DR. GEORGE C. ANDREWS.

This patient was presented before the section on Nov. 7, 1928.

A CASE FOR DIAGNOSIS (PYODERMIA?). Presented by DR. GEORGE C. ANDREWS.

W. H., a white man, aged 38, has had a tumor on the inner surface of the left arm for three months. It has enlarged rapidly and sloughed in the center. He was in the Presbyterian Hospital from July until September, 1932, with acute appendicitis, a pelvic peritoneal abscess and also subhepatic and subphrenic abscesses. He made a complete recovery. While he was in the hospital his blood gave a positive Wassermann reaction. His brother also had a positive Wassermann reaction.

Examination showed a tumor the size of an apple in the subcutaneous tissue on the inner surface of the left arm. The skin over the outer portion was of normal color while the center showed redness and sloughing. The tumor was firm, and no fluctuation could be felt. One small palpable gland was found in the axilla, but it was not tender.

The Wassermann and Kahn tests have been positive on several occasions. The patient has been taking potassium iodide for the past two months.

Cutaneous tests with the nucleoprotein of Streptococcus viridans were negative; with staphylococcus toxin (1:10 dilution), there were a wheal 1 cm. in diameter and an area of erythema 3 cm. in diameter.

DISCUSSION

DR. GEORGE C. ANDREWS: I have considered the diagnoses of syphilis, neoplasm and metastatic streptococcic pyodermia.

DR. HERMAN GOODMAN: I believe the deep-seated lesion on the inner side of the upper arm to be a reaction to modified streptococci, as were the previous lesions. I have not considered a diagnosis of new growth.

MYCOSIS FUNGOIDES, PREFUNGOID STAGE? Presented by DR. LOUIS CHARGIN.

This patient was presented before the Bronx Dermatological Society, on Feb. 18, 1932 (ARCH. DERMAT. & SYPH. **26**:577 [Sept.] 1932).

GRANULOMA ANNULARE. Presented by DR. GEORGE C. ANDREWS.

Y. F., a girl, aged 14, complains of an eruption on the left side of the neck of five years' duration, which began shortly after an operation on the thyroid gland. The original lesion was small at first and has slowly grown larger. Later,

other lesions appeared on the right side of the neck. On examination, on the left side of the neck there was a reddish patch, the size of a half dollar, with a depressed center and an elevated border. The border was somewhat firm and purplish. The center was slightly wrinkled and showed a fine scale. On the right side of the neck, lateral to the midline, there was a group of reddish-purple, firm nodules as well as an annular lesion, the size of a silver quarter, which had a depressed center and a raised border. The color in this lesion changed from red in the center to purple at the borders. There were two lesions on the hands and arms which consisted of many various-sized erythematous, scaly patches with slight fissuring.

The Wassermann test has been negative on several occasions. The tuberculin (old) test (1 : 10,000 and 1 : 1,000 dilutions) was negative.

The patient has been operated on for adenoma of the thyroid, nephrolithiasis and calculus in the ureter.

A biopsy specimen taken from the neck on Oct. 25, 1932, was reported as "undiagnosed." There was a suggestion of lymphoblastoma. Biopsy on Nov. 7, 1932, showed granuloma annulare. The epithelium was edematous and slightly infiltrated; the corium showed a chronic inflammatory process; the infiltration was polymorphous and arranged about certain areas. The center showed degeneration of collagen but no distinct necrosis. Epithelioid cells and a few giant cells were noted.

DISCUSSION

DR. FRED WISE: I agree with the clinical diagnosis of granuloma annulare. I have not seen the slide. I think that Graham-Little, in an article on granuloma annulare, described widely distributed eruptions.

DR. J. FRANK FRASER: I agree with the diagnosis. The appearance of the lesions on the neck is typical of granuloma annulare. In the biopsy report, no reference was made to the distribution of the infiltration. In granuloma annulare cellular infiltration is located chiefly in the deep layers of the corium.

DR. E. WILLIAM ABRAMOWITZ: I cannot see a similarity between the lesions on the neck which are typical of granuloma annulare and the superficial erythematous, scaly patches on the arms. Although a few of the latter lesions have an annular arrangement, I am inclined to believe that, owing to the absence of infiltration, they are somewhat different — perhaps those of ordinary eczema.

DR. MAX SCHEER: I think that the lesions on the arm are not those of granuloma annulare.

DR. FRED WISE: The patient has a circinate lesion on the right arm about 1 inch (2.5 cm.) above the elbow which I think is the same type of lesion as that on the neck. I think that the incipient lesions on the forearm are precursors of granuloma annulare. I feel that all the lesions are manifestations of the same condition and that those on the forearm eventually will show the histologic picture of granuloma annulare.

DR. GEORGE C. ANDREWS: When the patient came to the clinic she had eczema of the hands, which has disappeared during the past month. I agree with Dr. Wise that some of the lesions on the forearms are annular. I think the eruption on the arms may be granuloma annulare instead of the remnants of the eczema of the hands. At one time, according to Dr. Hopkins, she had a definite lesion of granuloma annulare on one wrist.

PSORIASIS (?) LIMITED TO ONE FINGER-TIP. Presented by DR. LOUIS CHARGIN.

L. K., a woman, aged 29, single, was admitted to the clinic in September, 1931, suffering from active secondary syphilis. The Wassermann reaction was four plus. She was given twenty injections of arsphenamine and thirty-six of bismuth. The condition cleared promptly and has not recurred. About nine months ago some of the nails began to loosen at their free edges. Under local treatment by her family physician, the process was checked in a few weeks. About the same

time there appeared an eruption on the distal phalanx of the left thumb, affecting chiefly the sides and the palmar aspect. The nail became thick and there was a heaping up of scales on its under surface. This condition has persisted.

On examination, the eruption was erythematous, scaly, dry and sharply marginated. There were a few fissures which bled, especially after the hands were immersed in water. Somewhat removed from the major area there was a small papule with the same dryness and scaliness. This looked like a typical psoriatic papule. The nail was thickened, and there was a marked heaping up of scales underneath, chiefly at the distal end. The nail was distinctly yellowish. There was no itching. Pain was caused only by the fissures. Examination for fungi gave negative results. There was no evidence of psoriasis on the body.

The patient has had no former attack of psoriasis, and there is no history of the disease in the family.

DISCUSSION

DR. SIGMUND POLLITZER: I think that the condition is probably psoriasis. The development of a psoriatic patch on the elbow or elsewhere, however, would confirm the diagnosis.

DR. FRED WISE: The differential diagnosis lies possibly between psoriasis pustulosa and acrodermatitis of Hallopeau. It is practically impossible to make a differential diagnosis without repeated bacteriologic examinations.

DR. ISIDORE ROSEN: I agree with the diagnosis of psoriasis for the reasons that have already been given. I have seen cases in which a diagnosis of dermatophytosis was made, but the condition proved to be psoriasis. The lesion in this case is especially suggestive of psoriasis on account of the absence of vesiculation, the character of the scales, the persistence of the condition and the marked involvement of the nail itself.

DR. HERMANN GOLDENBERG: I believe that the condition is psoriasis vulgaris, not psoriasis pustulosa. The diagnosis of psoriasis can be made from a single lesion. I have repeatedly seen psoriasis of the glans penis without lesions elsewhere.

DR. SAMUEL PECK: In studying a number of infections of the nails I was struck by the fact that when a definite mycologic etiology could be proved, the nail presented changes different from those of psoriasis. Almost invariably, especially in the infections with yeasts, there was an accompanying paronychia. The surface of the nail was rough and discolored, there was a loss of its shine and in some instances the nail-beds seemed normal. In psoriasis, even though there were pitting and disfigurement of the nails, there was a loss of the surface smoothness.

DR. J. GARDNER HOPKINS: The characteristics described by Dr. Peck are, I believe, characteristic of infection with Monilia. I am not sure that the reverse, i. e., the absence of changes in the surface of the nails, is characteristic of psoriasis. In fact, one frequently sees such changes in this disease.

DR. MARION B. SULZBERGER: With reference to the differential diagnosis between psoriasis pustulosa of the hands and fingers and Hallopeau's acrodermatitis, I should like to ask the other members if it has been their experience that in one of these conditions the pustules are sterile and in the other they are not. In the few cases that I have had there have been sterile pustules in both diseases.

If I understood Dr. Peck's statement regarding the nails correctly, he means that infections with fungi of the type of Monilia are not likely to break through the surface. It seems to me that this depends on the localization and extent of the infection.

DR. J. FRANK FRASER: I agree with the presenter's diagnosis. I should also like to add my testimony to Dr. Goldenberg's that the condition is probably psoriasis vulgaris and not psoriasis pustulosa. I should like to ask Dr. Sulzberger whether there is a difference histologically between psoriasis pustulosa and Hallopeau's acrodermatitis.

DR. MARION B. SULZBERGER: I have not had an opportunity to study either of these diseases histologically. Barbour said that they resemble one another so much that one cannot make a differential diagnosis. If the lesion has been opened and precautions are not taken to remove the content in a sterile manner, staphylococci and other contaminants will be present.

DR. HERMAN GOODMAN: Is it accepted that the patient shows lesions which may be called pustular? I recall a patient in the ward at the Stuyvesant Square Hospital in the service of Dr. C. M. Williams, whose condition was diagnosed as Hallopeau's disease. Culture of unruptured vesicopustules yielded Staphylococcus albus.

Some psoriatic-appearing lesions have been caused by retention of heavy metals. Elimination treatment with sodium thiosulphate has resulted in remission of such lesions. This therapy is worth trying in this case.

DR. LOUIS CHARGIN: When pustular lesions are observed on the hands, one must rule out Hallopeau's acrodermatitis. In the case presented the lesions are dry. There has been no evidence of vesiculation or pustulation. My impression is that the condition is the common type of psoriasis, not the pustular type. One might interpret the yellowish discoloration as a manifestation of a deep-seated abscess under the nail, but such an abscess would cause pain either spontaneous or on pressure, which is not present.

A CASE FOR DIAGNOSIS (BULLOUS ERUPTION). Presented by DR. JOSEPH L. MORSE.

W. S., a boy, aged 12, presents an eruption that appeared suddenly, eight months ago, on the neck and spread to the trunk and groin. The condition improved under treatment with ultraviolet radiation and the administration of a solution of potassium arsenite by mouth, but new lesions continued to develop. About three months ago the eruption became profuse. A physician gave him ammoniated mercurial ointment and the aforementioned solution, and the condition improved markedly. However, while under treatment he began to feel ill. The urine was examined, and albumin and casts were found. He has been taking solution of potassium arsenite in doses of 5 drops for several months. Three or four weeks ago he was almost well, but the eruption broke out again acutely. There is moderate itching.

On examination, there was a vesicobullous and bullous eruption on the neck, trunk, groin, thighs and lower part of the legs. There were a few lesions on the face and at the nostrils and also on the scalp. The lesions varied in size from that of a large pinhead to that of a pea. They arose from normal skin. In places on the trunk they were grouped. There was no Nikolsky sign. The bullae were tense and did not rupture easily. Some of them were hemorrhagic. There was slight pigmentation in areas where the lesions had disappeared. There was no scarring. There were no lesions in the mouth.

The results of laboratory examinations were as follows: The blood count showed 13,750 white blood cells, 4,530,000 red blood cells and 94 per cent hemoglobin. The red cells were normal. There were 78 per cent polymorphonuclears, 71 per cent neutrophils, 6 per cent eosinophils, 1 per cent basophils, 20 per cent small lymphocytes and 2 per cent large lymphocytes. Pel's phytopharmacologic test of the blood gave a reading of 75 per cent, which was negative for pemphigus. The patch test with a 50 per cent solution of potassium iodide was negative. Examination of the urine revealed a faint trace of albumin and a few hyaline and coarsely granular casts. It contained 0.2 mg. of arsenic per hundred cubic centimeters. Smears from bullae showed Staphylococcus aureus, only eight colonies being found in the first dilution plate. Stained specimens showed the presence of eosinophils, several to a field.

The results of biopsy on a bullous lesion removed in toto were reported by Dr. Satenstein as follows: "In the upper cutis there was a fairly marked cellular infiltration in bandlike arrangement composed of small round and connective tissue

cells. Immediately above this there was a large subepidermic cavity containing fibrin and white blood cells. The epidermis was intact and thinned, as a result of stretching. There were some edema and cellular infiltration in the upper cutis but they were not marked. This picture is somewhat suggestive of lichen planus bullosum."

The condition has improved under treatment with potassium permanganate baths and a bland salve. The patient is also given sodium thiosulphate intravenously every other day. However, new lesions are still appearing.

DISCUSSION

DR. JOSEPH L. MORSE: When I first saw this boy I made a diagnosis of bullous impetigo. The condition looked a good deal like that in a case of Dr. Wise's that I have seen, and the boy's mother said that treatment with ammoniated mercurial ointment had been beneficial, although new crops of lesions developed while he used it.

In favor of dermatitis herpetiformis, there are the grouping of the lesions, the moderate eosinophilia in the blood and the finding of eosinophils in the bullae. However, there is little itching, and there is no pigmentation or scarring. This would favor a diagnosis of erythema multiforme. Against pemphigus are the boy's age, the fact that he is not ill enough generally and the normal reaction to Pel's test of the blood.

I did not think of lichen planus as a possible diagnosis because I did not see any lesions of lichen planus. In the few cases of bullous lichen planus that I have seen, lichen papules were observed at one time or another. However, Dr. Satenstein examined the slide and, to my surprise, reported that the picture simulated that of lichen planus. He is not here tonight to give his reasons, but the members may look at the slide. In spite of therapy new lesions continue to appear. I am as uncertain of the diagnosis now as I was at first.

DR. J. FRANK FRASER: The histologic picture shows nothing characteristic of lichen planus. It is more consistent with a diagnosis of erythema multiforme than with one of either pemphigus or dermatitis herpetiformis.

DR. J. GARDNER HOPKINS: My impression is that these are bullous lesions which started in one area, spread in a serpiginous manner and gradually involved a much larger area. The case reminds me of one or two others which I have seen. One patient who was presented before the section had festooned lesions around the axilla, the borders made up of bullae with thin purulent contents which spread slowly peripherally and cleared in the center. I remember that the same discussion arose as to whether the condition was pemphigus or dermatitis herpetiformis. I treated the patient locally by cleansing the affected areas daily and by painting the lesions with gentian violet, and presented her later cured. While it is not a satisfactory diagnosis for such a remarkable picture, the members could come to no other conclusion than that the condition was a strange form of pyogenic infection related to impetigo. The improvement of Dr. Morse's patient under treatment with potassium permanganate is interesting. I should like to know whether these lesions could be cleared up with local antiseptic methods.

DR. E. WILLIAM ABRAMOWITZ: I am inclined to include the eruption that this boy presents in the group described many years ago by Engman and Mook as pemphigoid dermatitis. I have seen several cases like this presented, but have failed to obtain the history as to previous vaccinations or injections of a foreign protein. Some other cause may operate in the production of this type of dermatosis. I see no resemblance clinically to lichen planus, although Dr. Satenstein showed me the slide and, according to his interpretation, he believes the condition to be a bullous type of lichen planus.

DR. J. GARDNER HOPKINS: It seems to me that a lesion made up of bullae which spread serpiginously and clears in the center is not likely to be pemphigus, erythema multiforme or dermatitis herpetiformis.

DR. MARION B. SULZBERGER: With reference to the point that Dr. Abramowitz raised, it occurred to me also that this condition is like the postvaccinal eruption seen in children which was described by Engman and Mook. However, atypical dermatitis herpetiformis is frequently seen in children, and this case presents many points that favor that diagnosis. Many patients with Duhring's disease improve as this patient did.

The Nikolsky sign was negative.

I tried to obtain a history of previous vaccination. The patient's parents state with certainty that the child has never been vaccinated; he even managed to escape the regular vaccination in school.

DR. SAMUEL PECK: Last year I presented a case with a diagnosis of dermatitis herpetiformis which evoked much discussion. The patient had been vaccinated shortly before the eruption occurred. Clinically the condition resembled that in this case. The recurrences occurred mainly in the axilla. Dr. Chargin has pointed out that at the Mount Sinai Hospital this type of disease has a benign course in children, and that it belongs to the erythema multiforme group. This is exemplified by the patient whom I present; he has remained free from eruption for six months.

SARCOID. Presented by DR. LEWIS BYRNE ROBINSON.

E. E. S., a colored girl, aged 20, about three years ago had lesions in the region of the eyelids, nose, lips and cheeks. She was given two injections of gold sodium thiosulphate and then a private physician treated several lesions with caustics. She now shows a number of discrete and confluent, light brown nodules, varying in size from that of a pinhead to that of a split pea. They are most numerous over the left eyelid and below and around the alae nasi. There are a few scattered lesions on the cheeks and around the lips and mouth.

Microscopic sections showed a small nodule over which the epithelium was atrophic. Slight keratosis was present. The corium showed a replacement of the normal collagen by tubercles containing giant cells, epithelioid cells and a few lymphocytes. An occasional plasma cell was seen. Satellite infiltrations by epithelioid cells were seen. A perivascular infiltration was noted. There was no necrosis. There were many chromatophores in the corium. Acid-fast staining disclosed no bacilli.

The tuberculin test was negative after forty-eight hours. The Wassermann test was also negative.

Treatment consisted of four injections of gold sodium thiosulphate but, because of reactions, these were discontinued. She then was given 4 amino-2 aurothiophenol carbonic acid intravenously, and there has been some improvement. The lesions on the nose have practically disappeared as well as those around the left eye and to some extent those around the mouth.

Roentgen examination of the chest on May 16, 1932, showed evidence of soft-appearing densities scattered throughout the pulmonary fields. This is consistent with an advanced tuberculous process of recent origin. There was evidence of apical pleural thickening on the right side. The costophrenic angles were clear.

Examination of the lungs revealed no physical signs that corresponded with the roentgenologic findings.

DISCUSSION

DR. SIGMUND POLLITZER: The distribution of the lesions, with the small nodules, is an extraordinary type for sarcoid.

DR. MARION B. SULZBERGER: Many cases of sarcoid have been presented this evening. They are interesting to me because I have been trying to find out something regarding immunology in this condition. Most observers agree that tuberculosis has been established as an etiologic factor, although a few deny it. An argument in favor of the tuberculous etiology is that patients with sarcoid react differently to tuberculin than do normal persons. The tuberculin reaction was negative in all the cases presented here. In many of the cases there were evidences of involvement of the lungs. The roentgenologic diagnosis in all the cases was tuberculosis.

DR. J. GARDNER HOPKINS: In at least one case, the roentgenologist was in considerable doubt as to whether the findings showed tuberculosis. They suggested tuberculous bronchopneumonia more than anything else. In other cases of sarcoid peribronchial infiltration or infiltrations scattered through the lung are reported, but there is seldom the apical infiltration seen in tuberculosis. The diagnosis of tuberculous bronchopneumonia could hardly be made in a patient in as good health as this one is. The findings in this case are like those reported in the literature. There is evidence of involvement of the lungs, but grave doubt as to whether the involvement is tuberculous.

DR. MAX SCHEER: I think that the peculiar complex of lesions associated with sarcoid, viz., a peculiar pulmonary infiltration (nontuberculous), rarefaction of the bones (especially the phalanges) and a negative tuberculin reaction (even to clinical concentrated doses), is in favor of a diagnosis other than tuberculosis.

DR. LEWIS BYRNE ROBINSON: The two patients with sarcoid presented both show lesions in the lungs diagnosed by the roentgenologists as chronic pulmonary tuberculosis. In a patient presented by Dr. Andrews, in 1926, who came to the Presbyterian Hospital, roentgen examination revealed many small shadows in the lungs, the diagnosis was chronic pulmonary tuberculosis. Most of the shadows were in the lower lobes, which is unusual in tuberculosis. There were no lesions on the skin. In 1932 the patient returned with sarcoid lesions, and the pulmonary picture did not resemble that of tuberculosis.

I am wondering if the original condition was not so-called sarcoid of the lung with subsequent development of sarcoid of the skin.

DR. MARION B. SULZBERGER: What has been said about the atypical pulmonary picture is true. Neither the internal nor the cutaneous lesions have the appearance of classic tuberculous sarcoid. They consist of epithelioid cells and fibrosis.

The rat has been recognized as one of the animals immune to tuberculosis. Werner Jadassohn's experiments on these animals furnish another argument in favor of the tuberculous etiology of most cases of sarcoid. In experimental infection of the skin of the rat with tubercle bacilli, he showed the following points of resemblance to sarcoid: (*a*) There are anticutins and procutins in the serum; (*b*) the lesions are epithelioid cell tubercles; (*c*) the bacilli are rapidly damaged or destroyed, and (*d*) the tuberculin reaction remains negative.

A CASE FOR DIAGNOSIS (YEAST INFECTION?). Presented by DR. GEORGE M. LEWIS.

This patient's eruption began on the back of the neck and has gradually spread to other areas. On examination, the lesions were brownish, somewhat verrucous growths covered with scales and showing a tendency toward follicular involvement. They showed a tendency to coalesce and form bands and plaques. Scaling was more pronounced in the pubic region. Atrophic depigmented areas were present on the neck and in other areas. The eruption occupied the neck, the axillae, the pubic and crural regions and the area under the breasts.

Budding yeast cells were demonstrated in extemporaneous preparations. No mycelia were found. Two yeast growths were recovered from the skin and one from the stool. Morphologically the three growths were unrelated. Patch and intradermal tests with trichophytin and various yeast extracts gave essentially negative results. Two sections of skin removed from the neck and the pubis revealed budding yeast cells in the stratum corneum grouped at the follicular orifices. On two occasions, samples of the three living yeast growths recovered were massaged into excoriated areas on the patient's skin. On the second attempt pigmented scaly lesions resulted from the inoculations in all three areas, and two weeks following the implantations the original fungi were recovered. Since then, without treatment, the sites have regressed to pigmented macules.

Treatment at the New York Post-Graduate Skin Clinic has consisted of local applications of sodium hyposulphite and salicylic acid in alcohol. Marked improvement has resulted.

DISCUSSION

DR. J. GARDNER HOPKINS: Experience indicates that inoculation with Monilia succeeds only in predisposed areas. It has been successful in intertriginous areas and beneath wet dressings. The failure of inoculation to produce a reaction on dry skin which is not susceptible to infection with Monilia does not disprove the pathogenicity of the organism.

DR. GEORGE C. ANDREWS: I cannot explain the conflicting bacteriologic findings. I think that the lesions in the armpits are suggestive of juvenile acanthosis nigricans. The patient says she has similar warty lesions in the groins, around the navel and under the breasts. She is fat and looks as though she had an endocrine disturbance. I think there is a possibility that the fungi are saprophytic.

DR. MAX SCHEER: The lesions in the axillae, with slight verrucous formation and slight pigmentation, look somewhat like those in the early stages of juvenile acanthosis nigricans. Dr. Wise showed me the armpits of other fat patients in whom he found the same condition.

DR. E. WILLIAM ABRAMOWITZ: I recall seeing this patient when she first appeared at the New York Post-Graduate Hospital Skin Clinic. My associates and I came to the conclusion that the condition was an atypical type of tinea versicolor. I examined the lesions under Wood's filter and obtained a golden brown fluorescence. This is fairly characteristic in this condition. We excluded acanthosis nigricans and, considering that the patient has shown marked improvement under local treatment, this disease can be definitely ruled out.

DR. SIGMUND POLLITZER: The case is complicated by the examinations that have been made. Yeast is almost universally distributed. The lesions on the chest that look atrophic are in all probability those of tinea versicolor. The apparent thickening in the axilla is commonly seen in fat women. The axilla is subject to considerable motion and tends to form ridges when there is much subcutaneous adipose tissue, I do not think that there is any basis for a diagnosis of acanthosis nigricans.

Dr. GEORGE M. LEWIS: The lesions on the neck have improved considerably since the patient has been under observation. Those in the pubic area have not improved to the same extent, and if it were possible to observe this region here one would find scaling prominent. Dr. Andrew's suggestion as to the possibility of acanthosis nigricans was considered in differential diagnosis, but that condition was ruled out on clinical and pathologic grounds.

A CASE FOR DIAGNOSIS. Presented by DR. MAX SCHEER.

J. N., an American woman, aged 40, from the New York Post-Graduate Hospital Skin Clinic, stated that she had her first attack eight years ago. The eruption involved the eyelids and the adjacent skin, the tip of the nose, the upper lip, the area around the mouth and the areola of the right breast. Subsequent attacks occurred in the same locations except that the right eye was not involved. The first attack had lasted for one and a half years when the patient was given intravenous injections of a gold compound by a private physician; the eruption cleared up in three months. The second attack occurred about two years later, and the third about two years after the second; in both, the condition was cleared up in a few weeks by the same treatment.

The fourth attack began six months ago.

On examination, the eruption consisted of sharply defined, violaceous-red areas, with turbid vesicles the size of a small pea in and near the borders. These areas dried into yellow, friable crusts. The central portions felt slightly infiltrated and showed scaling and crusting. Itching and burning were present but not severe.

The past history and the results of physical examination are unimportant. The result of the Wassermann test has not been reported. There is no history of self-medication. On Nov. 11, 1932, the soft palate and uvula were found to be covered with closely set, clear vesicles the size of a pinhead.

DISCUSSION

DR. ISIDORE ROSEN: I saw this patient two years ago. At that time the eruption was distinctly herpetic around the mouth and on the eyelids and the breasts. I suggested the diagnosis of pemphigus vulgaris, and I think that this diagnosis should be considered even at the present time.

DR. SIGMUND POLLITZER: This rash, which has recurred from time to time over a period of years, may be a sensitization dermatitis.

DR. CHARLES WOLF: I saw this patient about four weeks ago and made a tentative diagnosis of dermatitis artefacta.

DR. FRED WISE: The diagnosis of artificial dermatitis may be excluded by the peculiar lesion on the right side of the tongue which is not excoriated. It is elevated, tumor-like, and sharply defined. If the cutaneous lesions are assumed to be of the same nature and cause, the eruption is not artificial dermatitis.

SARCOID. Presented by DR. GEORGE C. ANDREWS.

Z. H., a woman, aged 34, was presented before the section in March, 1932, with a diagnosis of syphilis. Since that presentation biopsy has been performed. The sections showed slight keratosis and slight edema of the epithelium. The striking features, however, were found in the corium. Here there were sarcoid-like infiltrations, many of them arranged about blood vessels, which were composed of epithelioid cells with an occasional large giant cell in the center. A few round cells which appeared to be lymphocytes were seen. Acid-fast staining gave negative results. In view of the microscopic appearance and the persistence of the lesions, the histologic diagnosis was sarcoid of the superficial type.

DISCUSSION

DR. GEORGE C. ANDREWS: The patient has received ample antisyphilitic treatment. After the first few injections of arsphenamine and bismuth there seemed to be improvement, but after treatment for many months it is evident that the lesions will not respond to such treatment. When the patient was previously presented it was agreed that if the eruption disappeared as a result of four or five injections of arsphenamine it would be considered syphilitic, and that if the lesions did not disappear it would not be considered so.

One must accept the diagnosis of the plaquelike type of sarcoid, probably of tuberculous origin, as Dr. Goldenberg pointed out when the patient was previously presented. Blumenthal, of Berlin, presented a similar case before the Berliner dermatologische Gesellschaft on May 30, 1930.

DR. MARION B. SULZBERGER: What were the findings in the lungs?

DR. GEORGE C. ANDREWS: The diagnosis of pulmonary tuberculosis was made chiefly on the roentgenologic findings. However, the internists considered the diagnosis of syphilis of the lungs because the lesions were chiefly at the bases and were not characteristic of tuberculosis. My associates and I were not sure of the diagnosis of pulmonary tuberculosis.

DR. ISIDORE ROSEN: Such a large mass, associated with little pain, good general health, central necrosis and no enlarged glands, is strongly suggestive of gumma. The Wassermann reaction was positive. I have seen gummas located in the muscles that had a hard, cartilaginous consistency not unlike that of sarcoma.

DR. HERMANN FEIT: The diagnosis of gumma was considered. The patient gave a four plus Wassermann reaction. According to the history, the tumor developed without any changes in the overlying skin. If one palpates the tumor one will find it hard, which is not true of gumma. It may be a sarcoma. It is important in cases with positive serologic reactions to palpate the growth in order not to overlook a neoplasm. Recently in a case in which syphilis, actinomycosis, rhinoscleroma and other conditions had been diagnosed, the pathologist reported the condition to be blastocytoma.

DR. LEO SPIEGEL: The lesion does not impress me as being a gumma, although the patient gave a four plus Wassermann reaction Dr. Andrews mentioned that the patient had a number of abscesses during his stay in the hospital. While a positive diagnosis cannot be made without biopsy, I believe the mass to be a low grade infection.

DR. RAY H. RULISON: I agree with Dr. Rosen that the growth is probably a gumma.

DR. CHARLES WOLF: I do not think that the tumor is malignant, i. e., a lymphosarcoma. These growths do not break down so rapidly. Secondly, it is not a syphilitic lesion because considerable antisyphilitic treatment has been given without response. I think it is mycosis fungoides d'emblée.

DR. SIGMUND POLLITZER: The lesion does not seem to be a gumma. It is a hard, large mass obviously between the skin and the underlying muscle. A gumma does not break down in this way. As to what the condition is, one can only guess. I think that the suggestion of mycosis fungoides d'emblée is worth considering. The diagnosis of sarcoma arising in the subcutaneous tissue seems to me fairly reasonable. One will not arrive at a diagnosis until biopsy is made, which should be done soon. Operation may be life-saving. The differential diagnosis between gumma and mycosis fungoides and sarcoma may be difficult.

DR. MARION B. SULZBERGER: The urgency for diagnosis is as great as Dr. Pollitzer says. I am sure that Dr. Andrews wanted to include the diagnosis of possible fixed iodide eruption in his differential considerations. Iodide eruptions sometimes are single lesions, sometimes are tumorlike, resembling sarcoma nodules, and sometimes break down like gummas. Dermatologists have learned something about the malignancy and the atypical appearance of eruptions due to halogens in the recent papers of Bloch and Tenchio and of Eller.

DR. J. FRANK FRASER: The condition is probably not syphilis. It is likely that it is a neoplasm. Dr. Wolf's suggestion that the growth may be mycosis fungoides should be considered. I agree with Dr. Pollitzer that biopsy should be performed at once. There is no danger in taking a specimen with a sharp scalpel, even if the growth is a sarcoma.

DR. FRED WISE: The diagnosis that appeals to me most is the one that Dr. Sulzberger mentioned, i. e., an isolated iodide eruption.

DR. ADOLPH ROSTENBERG: The case reminds me of one of mine shown before the section a few years ago in which a melanosarcoma, located on the right leg, responded rapidly to roentgen therapy. The case was shown again, and no definite diagnosis was made. The blood at that time showed no leukemic changes. Finally, however, the condition proved to be lymphatic leukemia. My suggestion would be to treat the tumor with roentgen radiation and make repeated examinations of the blood.

DR. HERMANN FEIT: The patient had the growth before iodide was given, which seems to rule out the diagnosis of iododerma which is usually a vegetating tumor.

DR. GEORGE C. ANDREWS: I am not sure that the growth appeared before iodide was given.

DR. HERMANN FEIT: In the few cases of mycosis fungoides d'emblée that I have seen there were exudative tumors above the skin.

DR. GEORGE C. ANDREWS: We thought of the diagnosis of iodide eruption but did not feel inclined to accept it, because the lesion is an indurated, infiltrated, stony hard mass without exudation. Most of the lesions caused by iodides that I have seen have been more or less rubbery on palpation and exudative. I think that one feature of the vegetative iodide eruption is the exudation and autolytic discharge due to the breaking down of the cells. The present mass is painless. In respect to mycosis fungoides, I cannot consider that diagnosis because the lesion, according to the description, was for a month a subcutaneous tumor without involvement of the skin overlying it.

Streptococcic lesions similar to metastatic abscesses are unusual. Several surgeons have seen the lesion and have thought it was an abscess of that type rather than a neoplasm.

Certain features favor the diagnosis of syphilis, namely, the duration, the lack of pain and the positive Wassermann reaction; and the fact that the lesion has developed in spite of the small amount of iodide the patient received is not against its being a gumma. We have decided to make a biopsy and to give the patient strenuous antisyphilitic treatment for a week or two.

DR. CHARLES WOLF: I do not see the necessity of resorting to the drastic therapeutic measures outlined. If the condition is sarcoma, lymphosarcoma or mycosis fungoides, proved by biopsy, there is only one specific treatment, viz., massive doses of high voltage roentgen treatment or a radium pack.

DR. GEORGE C. ANDREWS: I agree with Dr. Fraser that biopsy should be performed immediately on a sarcoma that is growing as rapidly as this one apparently has. The pathologist at the Columbia Presbyterian Hospital medical center took an attitude a little different from the usual one in regard to biopsy: Is it more dangerous to let a sarcoma alone or to find out whether a growth is a sarcoma and treat it properly?

The stony induration and the lack of exudation exclude the possibility of iodide eruption. As to the proper surgical treatment, if the lesion is a sarcoma, that is a surgical, not a dermatologic problem.

ADENOMA SEBACEUM (PRINGLE); RECKLINGHAUSEN'S DISEASE; OCCURRENCE IN MOTHER AND TWO DAUGHTERS. Presented by DR. PAUL GROSS and DR. JULIUS RAAB.

CASE 1.—R. P. is a white girl, aged 16, born in the United States. The skin was normal at birth and remained so up to the age of 6 years. She has always done good work in school. On examination, the appearance of the face and trunk was similar to that presented by her sister (case 2). On the left cheek there was a round reddish tumor the size of a cherry. At the base of the right big toe there was a purplish, flattened, papillomatous lesion the size of a pea, and the entire toe seemed to be enlarged. There was dystrophy of the medial portion of the nail.

CASE 2.—H. P., the sister of the patient just presented, is a white girl, aged 13, born in the United States. Her skin was normal at birth and remained so up to the age of 6 years.

On examination, there were numerous pinhead-sized, reddish, firm tumors, chiefly on the middle part of the face with a numerical increase in the nasolabial folds. On the trunk were numerous *café au lait* spots, small pendulous soft tumors and numerous flat, slightly elevated lesions, varying in color from that of the normal skin to light brown.

CASE 3.—This patient, the mother of the two girls just presented, has an eruption similar to that of her two daughters. Her mother and sisters have never shown a similar condition.

On examination, in addition to the adenoma sebaceum, on the trunk there were numerous firm, round, oval and flat tumors, varying from the size of a pinhead to that of a pea, and either the color of the normal skin or brownish.

A CASE FOR DIAGNOSIS (POROKERATOSIS MIBELLI?). Presented by DR. PAUL GROSS.

A. A., a colored woman, aged 35, born in the West Indies, has had a condition of the right foot for twenty years. The ankle becomes swollen, and improvement is effected only by rest in bed. For five weeks prior to presentation, there has been a discharge of pus.

Examination over the external malleolus of the right foot showed an irregularly shaped lesion about 2 inches (5 cm.) long. The upper pole of the lesion showed a sinus discharging thin pus surrounded by a slight inflammatory reaction and

crusting. In the distal portion there was an area which showed numerous keratotic plugs and pinhead-sized scars. On the border of this area were two round, lentil-sized lesions which were raised and hyperkeratotic, with somewhat depressed centers.

TERTIARY SYPHILIS (?). Presented by DR. A. BENSON CANNON.

A. M., a white woman, aged 57, born in the United States, gives a history of a symptomless eruption clearing in one area and appearing in another, which has recently been accompanied by edema of the intra-orbital region. The patient had psoriasis (not involving the face) for many years, until ten years ago. In 1922 the Wassermann test was negative. She has been married but has never been pregnant.

Examination of the face showed infiltrated, erythematous, irregular, somewhat scaly patches, which appeared to be confluent, and flat papules over the outer third of the cheeks and the forehead. On the right forearm there was an erythematous macule 2 cm. in diameter. In some areas the skin was thinned and there was some exfoliation but no definite atrophy. On diascopy no brownish nodules were seen. There was marked edema of the infra-orbital tissues.

The Wassermann reaction on Dec. 5, 1932, was four plus with both antigens; the Kahn reaction was six plus.

The results of biopsy on a specimen from a lesion on the right cheek, taken on Dec. 5, 1932, will be reported at the next meeting.

DERMATITIS PAPULOSA NIGRA. Presented by DR. GEORGE C. ANDREWS.

E. W., a colored woman, aged 25, shows lesions that have appeared slowly over a period of years. They have been limited to the face and symptomless. No other disease of the skin is present. The patient's past history is unimportant. She states that she was born in the West Indies. On examination, her face showed numerous slightly elevated, soft, black papules the size of a pinhead. Biopsy sections were made of a "surface slice" from a papule on the forehead. Moderate hyperkeratosis was noted. The follicles showed plugging. Intra-epithelial keratin-filled cysts were noted. Melanin and a few spores were seen in the keratin. The epithelium had assumed a reticulated appearance, and melanin was seen. The melanin was particularly abundant in the nasal layer, but also occurred in the other epithelial cells. In the little corium that was present in these sections numerous irregular melanin-filled cells (chromatophores) were seen.

SCLERODERMA (IMPROVED UNDER TREATMENT WITH PANCREAS). Presented by DR. F. VERO.

W. F., a boy, aged 14 years, was admitted to the dermatologic clinic in May, 1929. His mother gave a history of cyanosis and coldness over the extremities. The child was thin and undernourished. There was no history of previous diseases. He had received thyroid for years without improvement. He was not seen until April, 1931, when he was against referred to the dermatologic clinic from the surgical clinic where a spinal ganglionectomy was considered.

On examination in April, 1931, the skin of the hands and arms was hard and stiff; motion was limited in the elbows, wrists and fingers. There were numerous trophic ulcers at the bony prominences on the elbows and ankles. The face appeared masklike.

The patient has been treated with pancreatin, raw pancreas and pancreas hormone, and the condition has improved. There has been an increase in weight (14 pounds [6.4 Kg.] in a year). The skin on the hands is less tense and thick, permitting closing of the fists. The trophic ulcers have healed since injections of pancreas hormone were given. The expression of the face has become more nearly normal, the appetite is good, and the boy can stand the cold weather better.

MANHATTAN DERMATOLOGIC SOCIETY

M. B. PAROUNAGIAN, M.D., *Secretary*

Nov. 15, 1932

FRED WISE, M.D., *Chairman*

LEUKODERMA CENTRIFUGUM ACQUISITUM. Presented by DR. GEORGE C. ANDREWS.

During the two years previous to presentation, R. D., a youth, aged 18, had had small moles along the midclavicular line, below and above the left nipple and in the midscapular line on the back. These moles were each surrounded by an area of leukoderma. They looked something like supernumerary nipples, but were probably soft moles.

NODULAR SYPHILID OF THE FACE. Presented by DR. LUDWIG OULMANN.

A woman, aged 58 had had a number of children and had been under treatment in former years for eczema. A week before presentation, a butterfly-shaped eruption developed on both cheeks. As the lesions with central depressions on both cheeks consisted of confluent nodules at the margins, a Wassermann test was done and was reported to be 4 plus. After the first injection of bismuth the condition showed decided improvement. Since then one injection of arsphenamine has been given.

DISCUSSION

DR. ISADORE ROSEN: While I agree with the diagnosis as presented, there are many features, in my opinion, which suggest sarcoid.

DR. MAX SCHEER: The lesions are, I think, "sarcoid," due to syphilis.

DR. HERBERT H. BAUCKUS (by invitation): The fact that the eruption cleared up under arsphenamine might not signify anything, since sarcoid also may show a similar therapeutic response.

DR. MIHRAN B. PAROUNAGIAN: I agree with the diagnosis. If the patient's Wassermann reaction were negative, how many of us would make a diagnosis of syphilis? The clinical appearance would suggest lupus vulgaris more than syphilis. However, the short duration and the positive Wassermann test confirm the diagnosis of syphilis.

A CASE FOR DIAGNOSIS (ERYTHEMA MULTIFORME?). Presented by DR. MAX SCHEER.

J. N., an American housewife, aged 40, from the New York Post-Graduate Hospital skin clinic, had had no serious illness except scarlet fever at the age of 8. A condition similar to the one for which she was presented appeared on three previous occasions. The first lesions appeared about eight years ago, and the others about two years apart. Two and a half years ago she received twelve intravenous injections of a gold preparation.

The condition for which she was presented began last June as a group of "blisters" just below the left lower eyelid. In the middle of August, the eruption appeared on the lips and in the mouth. More recently, lesions appeared on the left breast and the tip of the nose. Itching and burning were present.

The largest and first lesion was below the left eye—a sharply defined patch about 1½ inches (3.8 cm.) in diameter. The border was erythematous, and on and just within it were isolated and confluent pea-sized and pinhead-sized vesicles. The central part of the patch was scaly and crusted with dried serum. The other affected areas were smaller. The lips had vesicles which were turbid, in and within the vermilion border. The most recent patches, on the tip of the nose and on the areola of the right breast near the nipple, were smaller, and the surface

became macerated shortly after the vesicles appeared. Closely set, clear, pinhead-sized vesicles were seen on the soft palate and uvula on Nov. 11, 1932.

The patient said that she had not used internal medications such as cathartics.

DISCUSSION

DR. JOSEPH J. ELLER: I think that this is a case of erythema multiforme with bullous lesions.

DR. GEORGE C. ANDREWS: I regard the condition as recurrent erythema multiforme and should not be surprised to find some dental infection.

DR. LOUIS B. MOUNT: I believe that this case ought to be studied mycologically.

DR. FRED WISE: I agree to erythema multiforme as the probable diagnosis.

MULTIPLE SUPERFICIAL EPITHELIOMATOSIS. Presented by DR. PAUL E. BECHET.

K. S., a woman, aged 52, had the left breast amputated on March 9, 1926. The histologic and clinical diagnosis was chronic interstitial mastitis. On Sept. 18, 1928, the right breast was removed together with the axillary glands, and the histopathologic report was chronic cystic-mastitis. On May 15, 1929, a complete hysterectomy was done for a fibroid tumor of the uterus. The lesions on the skin had begun to appear four years previously. When first seen a few weeks ago, the patient had eighteen or twenty superficial, crusted, sharply outlined, red lesions, from 1 to 3 mm. in diameter, with slightly elevated and rolled edges, and superficially scarred centers. The lesions had increased slowly both in size and in number, and were typical of the so-called superficial, flat basal cell type of epithelioma.

DISCUSSION

DR. JOSEPH J. ELLER: I think that these lesions must all be considered multiple flat epitheliomas and treated as such. Microscopically, in such lesions, there may be found true basal cell epitheliomas, Bowen's type, and even a squamous cell type, which follows Bowen's type when the basal membrane is broken through.

DR. HERBERT H. BAUCKUS (by invitation): I think these lesions should be treated as epitheliomas and not as benign lesions.

DR. GEORGE C. ANDREWS: Whenever I see a case of multiple, flat epitheliomas, I question the patient concerning the ingestion of arsenic. This woman tells me that at the age of 7 she had extensive eczema for which she was treated by medicine, taken after meals in drops, which she thinks was arsenic. She took this medicine over a period of three years.

MULTIPLE GUMMAS OF THE SHAFT OF THE PENIS. Presented by DR. ISADORE ROSEN.

C. M., aged 48, white, a barber, born in the United States, was admitted to the New York Post-Graduate Hospital skin clinic on Nov. 7, 1932. He said that he had never had a syphilitic infection and had never had a blood test or treatment for syphilis prior to admission to the clinic. On admission, he presented on the shaft of the penis a large pea-sized ulcerated area, sharply outlined with an overhanging edge and a granular base. Slightly beneath this lesion was a small patch of infiltration which contained four small pea-sized ulcerated papules with eroded surfaces. The dark-field examination gave negative results. The Wassermann and Kahn tests of the blood were 4 plus.

The patient's general appearance was fair. The tongue, throat and teeth were normal. The left epitrochlear gland was present, and the pupils reacted normally. The reflexes were active. No Romberg sign was present.

NOTE.—The patient received 1 cc. of bismuth on November 16, 1 cc. on November 21 and 1 cc. on November 30. Vaccination with Ducrey's bacillus was not effective. On November 30, the lesions were healing, the ulceration was much flattened, and infiltration was markedly diminished. The bases of the lesions were clean.

DISCUSSION

DR. J. FRANK FRASER: I agree with the diagnosis. A gumma, as defined by Mallory, is a syphilitic lesion with necrosis. The lesions in the patient meet the requirements of this definition.

GUMMA OF THE TONGUE. Presented by DR. MAX SCHEER.

J. G., a man, aged 50, from the New York Post-Graduate Hospital skin clinic, presents on the dorsum of the tongue a walnut-sized mass, situated in the midline and posteriorly, in front of the circumvallate papillae. The surface was redder than the normal part of the tongue and the papillae less distinct. The lesion was higher in the middle and sloped gradually at the sides and back. In front, there was a firm abrupt border, raised about one eighth of an inch. The patient had a 2 plus Wassermann reaction and fixed, contracted pupils.

DISCUSSION

DR. J. FRANK FRASER: One of the most frequent errors in the diagnosis of lesions of the tongue is the naming of these lesions gumma because the patient has syphilis. Biopsy should always be performed. Carcinoma of the tongue is a frequent occurrence in syphilis. This lesion, to my mind, presents the clinical picture of carcinoma of the papillary type and of low grade malignancy. Should this diagnosis be established by microscopic examination, removal by the endothermic knife would be the best treatment.

DR. ISIDORE ROSEN: It is difficult to make a clinical diagnosis in this case, and I would suggest a histologic examination to rule out malignancy.

MULTIPLE STEATOMAS. Presented by DR. MIHRAN B. PAROUNAGIAN.

V. G., aged 34, a native of Puerto Rico, was admitted to the skin department of the Bellevue Hospital on Nov. 7, 1932. He said that he had never had a venereal disease. His Wassermann reaction was negative. Examination revealed a great number of large and small, sebaceous cystlike swellings over the entire body, with the exception of the parts below the knees. The duration was said to be fourteen years.

The lesions were of varying size; some were as small as a pinhead and others as large as hazel-nuts. They were very soft and elastic to the touch and not at all painful.

The majority of the lesions were situated on the trunk, anteriorly and posteriorly. Some of the lesions on the chest were flattened and gave a scarlike appearance or were atrophic. Some of the lesions in the right crural region were infected, and from these sebum-like matter could be expressed.

There were no anesthetic areas, no swelling of the ulnar nerves and no nasal discharge. A biopsy was made, but the report was "specimen not satisfactory."

PITTSBURGH DERMATOLOGICAL SOCIETY

FREDERICK AMSHEL, M.D., *Secretary*

Regular Meeting, Nov. 17, 1932

CLAUDE B. NORRIS, M.D., *President*

LYMPHOBLASTOMA. Presented by DR. W. H. GUY and DR. B. A. GOLDMANN.

S. K., a white man, aged 47, presented a confluent, maculopapular, coppery-red eruption involving the chest, abdomen and anterior surfaces of the thighs with

a generalized discrete almond-sized adenopathy. Subjectively a feeling of coldness was noted. Pruritic symptoms were absent. This condition began in April, 1932, and since then the patient has lost 3 pounds (1.4 Kg.). The Wassermann test was negative. Red blood cells numbered 3,920,000, and white blood cells, 12,850; the hemoglobin was 82 per cent; there were 52 per cent polymorphonuclears, 22 per cent lymphocytes, and 26 per cent eosinophils. The urine was normal.

A microscopic section of a gland showed marked hyperplasia but no destructive changes suggesting Hodgkin's disease. Sections of the skin showed a granulomatous type of infiltration.

A Case for Diagnosis. Presented by Dr. H. T. Phillips and Dr. W. Morginson.

J. M., a white man, aged 37, presented a circular area of alopecia, approximately 8 inches (20 cm.) in diameter, centering at the crown. This was of eight years' duration. Examination showed the involved scalp to be atrophic and covered with mica-like scales which were easily removed in pieces from 2 to 3 cm. in diameter. Follicular plugs were attached to the scales and when removed left small crater-like depressions in the scalp. The area had been involved with a recurring seborrheic dermatitis, particularly over the occiput. There were many small sebaceous cysts which at times became secondarily infected. There has been no marked change in appearance during the past four to six years except slow progression.

The pubic hair had also been involved by the same process, the loss of hair being complete eleven years prior to this presentation. There was never any inflammation, and the hair fell out gradually and not as an extending patch.

Since January, 1932, there appeared over the extremities from ten to twelve light brown, slightly elevated and slightly infiltrated, flat-topped, nonitching papules ranging in size from 0.5 to 1.5 cm. They caused no discomfort. (The histologic diagnosis was chronic inflammation.)

The Wassermann test had repeatedly been negative, and at one time the patient received from eight to ten injections of neoarsphenamine. A differential blood count today showed: hemoglobin, 80 per cent; red blood cells, 4,090,000; white blood cells, 9,450; polymorphonuclears, 72 per cent; small lymphocytes, 20 per cent; large lymphocytes, 3 per cent; large mononuclears, 1 per cent, and eosinophils, 4 per cent.

The patient was presented before the Four Cities Dermatological Society on Nov. 9, 1932, at which time the suggestion of a lymphoblastomatous process was offered. No other suggestions were made.

The report of histologic examination was as follows: "The specimen consists of a piece of tissue from the forearm. The surface is covered with stratified squamous epithelium which is normal in appearance. In the subcutaneous connective tissue there are collections of inflammatory cells situated for the most part around coil glands, hair follicles and small capillaries. The cells in these areas are plasma cells, lymphocytes and mononuclears with a few polymorphonuclears. There are also a few cells which contain a yellowish-brown granular pigment. There is no evidence of malignancy or of the formation of tubercles. I am not able to state definitely the cause of this condition. The diagnosis is: chronic inflammation."

DISCUSSION

Dr. W. H. Guy: When the patient was originally presented, biopsy specimens from the scalp showed a heavy lymphogranulomatous infiltration. The lesions on the body suggest sarcoid clinically, but certainly not histologically.

Dr. H. T. Phillips: This picture is confusing. The scalp shows characteristic changes of a pseudopelade of Brocq, while the lesions on the legs and arms look like those of hypodermic sarcoid. Occasionally tuberculosis toxin calls forth a

fibrous reaction which may produce loss of hair; that of course would explain the sarcoid-like lesions. I suggest a tuberculin study; it may prove that the patient is allergic.

TUBERCULOSIS VERRUCOSA CUTIS. Presented by DR. F. AMSHEL.

L. M. M., a girl, aged 16, was seen for the first time three months ago, at which time she presented an eruption of four years' duration on the right foot. Just anterior to the external maleolus on the right foot was a dark brown, crusted lesion. When the crusts were removed an erythematous lesion the size of a quarter was seen, with numerous punctate depressions or crypts and sinus-like formations. There were also an erythematous, scaly lesion the size of a dime on the left ankle and one over the right tibia. Two treatments of 2 skin units of unfiltered roentgen rays have been given to the lesion on the right foot, with marked improvement.

DISCUSSION

DR. W. H. GUY: The lesion on the ankle, except for the hard, pearly border, suggested a hypertrophic form of lupus erythematosus. Examination of a section would be necessary to establish a diagnosis.

DR. H. T. PHILLIPS: The oldest lesion has a definite raised pearly border. Biopsy of this advancing border might be illuminating. I do not agree with the presenter's diagnosis.

DR. F. AMSHEL: At the present time I would not make a diagnosis of tuberculosis verrucosa cutis. Nothing but a dry dressing has been applied for the past three days, with the result that the lesion is dry and covered with crusts. I believe the roentgen treatments have improved the condition to such an extent that the original picture has changed. I will try to get a biopsy specimen.

Subsequent biopsy proved this lesion to be an epithelioma.

ACNE VARIOLIFORMIS. Presented by DR. W. H. GUY and DR. F. JACOB.

A man, aged 25, presented numerous scars and a few active lesions on the face, neck and arms. The scars were regular, nearly 1 cm. in diameter and circular. All were pustular and crusted, superficial and markedly inflammatory. The condition was of several years' duration.

BRONX DERMATOLOGICAL SOCIETY

THEODORE ROSENTHAL, M.D., *Secretary*

Regular Meeting, Nov. 17, 1932

ADOLPH ROSTENBERG, M.D., *President*

LICHEN NITIDUS. Presented by DR. DAVID BLOOM.

A. D., a colored girl, aged 5 years, presents a generalized, mostly grouped, not confluent eruption. The individual lesions are round and polygonal, white, shiny, flat papules, from the size of a pinpoint to that of a pinhead, and are not elevated above the normal skin. Some of the lesions show a linear arrangement. The extensor surfaces of the extremities (elbows, forearms, backs of the hands, knees) and the back of the trunk are most markedly affected. The eruption has persisted for four and a half months.

The Mantoux test was moderately positive.

Biopsy showed the typical structure of lichen nitidus.

DISCUSSION

DR. W. SACHS: In the examination of sections in cases of this disease I have not observed any true tubercles, though the structure is tubercle-like.

DR. P. GROSS: I disagree with Dr. Sachs. It is most surprising to see a tubercle just under the epidermis. One will find a more or less pronounced, sharply circumscribed infiltration characteristic of lichen nitidus. This infiltration gives a better picture of the tubercle than any real tuberculous condition of the skin.

DR. F. DIASIO: I disagree with the last speaker. A review of the literature showed that many cases of lichen nitidus do not show tubercles. The condition is tuberculoid, but there are no true tubercles.

DR. S. PECK: The tubercle is found in only a few diseases of the skin, namely in tuberculosis miliaris and in lupus vulgaris. It is characterized by a ring of epithelioid cells with a ring of lymphocytes outside of that, but one rarely, if ever, finds central caseation. This structure is also characteristic of lichen nitidus. To be more precise, lichen nitidus as first described by Pincus did have a tuberculous structure, extending to the epidermis or separated from it by a group of epithelioid cells. That explains the clinical picture of the rise of the epidermis.

DR. D. BLOOM: I think that the question of lichen nitidus raises another question. Whether the condition in this case is due to tuberculosis is not decided in spite of the tuberculous structure which it presents.

NEVUS UNIUS LATERIS. Presented by DR. I. M. LASHINSKY.

J. F., a woman, aged 22, single, a teacher, born in the United States, presents a horseshoe-like eruption behind and below the left auricle, parallel with the lobe of the ear.

The patch consists of lentiginous, soft, brownish-red, somewhat glistening papules. These lesions have persisted since birth, and at no time have they caused inconvenience.

DISCUSSION

DR. P. GROSS: I think that this is a very interesting case and that a biopsy specimen should be obtained. I should not be surprised if it would show a nevus; yet the lesion might be a bronchiogenic cyst, which is a nevoid formation. If embryonal cells are found, this may be one of the rare cases of bronchiogenic cyst; if not, the lesion is simply a nevus.

DR. M. UMANSKY: The papules look yellowish and shiny. A condition called nevus sebaceus was described by Jadassohn. The lesion may be this kind of nevus.

A CASE FOR DIAGNOSIS (ERYTHÈME ANNULAIRE CIRCINÉE [DARIER]) OR PREMYCOSIS FUNGOIDES?). Presented by DR. LOUIS CHARGIN.

This patient was shown at the meeting on Feb. 18, 1932, as presenting a case for diagnosis, with the suggestion that the condition probably was erythema annulare of Darier or premycosis fungoides. She is again presented because of an interesting development. During the summer of 1932, while at the seashore, she exposed herself to the direct rays of the sun for a prolonged period. Probably as a result of these exposures, the eruption, which was at its worst during the late spring, completely cleared up so that when I saw her early in the fall the body was free from any visible eruption. In the course of a few weeks there has been a recurrence of the eruption, and the process is as severe as ever.

DISCUSSION

DR. P. GROSS: Two things struck me in this patient whom I have never seen before, namely, the pronounced scaling of the early lesion and the distinct erythema with edema. There are also lesions showing large scales or clear, nonscaly patches with a marked edematous border. The peculiar slight scaling, not sug-

gestive of psoriasis, impresses me as a lesion in the stage of regression. That may lead to a diagnosis. I think that these features point to the original diagnosis of erythema centrifugum. On the other hand, it is known from experience that erythema which results in a slight degree of scaliness is not common. So the condition may be erythema annulare rather than psoriasis. There are points in favor of erythema, others in favor of parapsoriasis and still others that suggest premycosis fungoides.

DR. S. PECK: I have not seen this patient before, and am not prejudiced by a previous diagnosis. It seems to me that the diagnosis of erythema of Darier is a little far-fetched. The eruption certainly does not look like that condition. It has a tendency to clear in the middle, but the border presents an appearance more like urticaria, and there is still infiltration of the central portion. It seems to me that the condition is most likely a premycotic eruption.

DR. L. CHARGIN: I am not making a definite diagnosis in this case. I can give reasons why I do not think the eruption is one or the other of the conditions mentioned. If I live long enough and the patient lives long enough and continues to consult me, I may eventually arrive at a diagnosis.

MELANOMA. Presented by DR. I. M. LASHINSKY.

A. F., a man, 75 years of age, an Italian laborer, came to the Morrisania Clinic on Nov. 16, 1932, presenting a growth on his back. His past history was irrelevant. He was unable to give the exact duration of the tumor because it had never annoyed him. He had been aware, however, of a "small pimple" in that location for a number of years. On various occasions he noticed that when he rubbed his body vigorously with a wash cloth, the cloth would be tinged with blood. Four months prior to admission to the clinic he felt that the lesion was getting larger. He consulted his family physician, who advised him to wait. One month prior to this presentation, on his own initiative, he began to apply iodine in the form of a salve in order to melt the growth away.

On examination a round, raised, bluish-pigmented tumor the size of a small walnut was found, which felt firm. It was located about 7 cm. below the right scapula, and continued into an elongated, subcutaneous, hard nodule. The area surrounding the tumor, for about 4 or 6 cm. in each direction, was markedly infiltrated.

DISCUSSION

DR. A. ROSTENBERG: I think that every one agrees on the diagnosis, and I should like to hear suggestions with regard to therapy.

DR. L. CHARGIN: Because of the patient's advanced age, heavy irradiation would seem to be the best method of treatment, unless he already has metastases, in which case it is better to let the condition alone.

DR. S. PECK: I am interested in the question of melanomas. From the theoretical standpoint one knows what can be done, and what the prognosis is if surgical or radium therapy is applied. Without minimizing the gravity of the melanoma, or melanocarcinoma, I think that physicians have had too great a fear of what might happen in these cases. I say this advisedly, for recurrences have been observed after long and short periods after heavy doses of roentgen radiation. May I recall a few illustrative cases?

In one case the diagnosis was melanocarcinoma; this was confirmed by biopsy, and the prognosis was considered poor. No roentgen therapy was given. Another patient at Mount Sinai Hospital had a blue lesion on the leg. A biopsy was made, and a melanoma was found. The limb was removed. The patient is now 15 years old and is doing well. Another patient, who is now 10 years old, in whose case the surgeons at Mount Sinai Hospital made a diagnosis of melanocarcinoma several years ago, is doing well. In the case of a boy a wide local excision was made; everybody agreed that the histologic picture showed malignancy and advised roentgen therapy. In cases in which a heavy dosage of roentgen rays

was given before excision, it did not make any difference in the outcome. No matter how radical the treatment, when the growths are very malignant little is to be expected. In cases that I have been able to follow in which the whole tumor was cut out, the patients did fairly well. In cases in which scattered red cells were found, the biopsy did not prove much one way or another. When the cells are deep, roentgen radiation and radium therapy will not do much good.

DR. F. CROSS: In some cases of melanocarcinoma in which radical surgical measures are used one gets good results with no recurrences, and in other cases there are recurrences, no matter how careful the operator is. It is generally accepted that melanoma is resistant to x-rays and gamma rays. Wide and deep excision is best.

DR. C. WOLF: This man has a rapidly growing tumor which is the melanotic type of carcinoma. He has metastases in the right axilla. I should give 10 erythema doses of roentgen rays, not only at the site of the lesion, but to a surrounding area extending 1 inch (2.5 cm.) in each direction. You may be alarmed at the huge dose. However, the literature is full of reports of cases in which such doses have been given with good results. I certainly should have a roentgenogram of the lungs taken in order to see if there are any deposits.

I think that Dr. Peck cited striking results. In addition to the patients treated successfully by surgeons at Mount Sinai Hospital, I have known of some who had very disastrous results. For instance, I may cite a case in which a wide excision was made; general metastases followed, and the patient died within four months. Similar results have been observed by others.

DR. C. LERNER: I agree with Dr. Chargin. If there are metastases in the gland or organs I should not treat the patient. He is an elderly man, and may not suffer discomfort. I disagree with Dr. Peck; I should hesitate to use a scalpel. One opens lymphatics as well as blood vessels, and there is a good chance of spreading the cells. If I were going to excise these lesions I should use a bipolar electric current. I should treat lesions up to the size of a silver dollar by this method. At the New York Post-Graduate Hospital Clinic my associates and I have obtained good results. When the lesion is wedge-shaped, with the apex at the bottom of the lesion, one has to reverse and cut out an area as wide at the bottom as at the top.

DR. A. SAYER: It is generally accepted by most physicians that a scalpel opens lymphatics as well as blood vessels. The endothermy knife, however, has a searing effect. The reaction in the tissue is not immediate, but it dilates the adjacent blood vessels. Therefore I believe that searing by an endothermy knife is better.

DR. S. PECK: I want to answer Dr. Lerner. In the first place, my associates and I do not make a diagnosis of melanoma readily. Secondly, when we excise a tumor the incision is made from 3 to 5 inches (7 to 12 cm.) around the lesion, so that a large piece is removed. I prefer this to a small excision made with a desiccating knife. The best results are obtained with a wide excision and radium.

DR. P. GROSS: One should keep one's hands off! What does it mean to keep one's hands off in a case like this in which the patient is 75 years old? If he is let alone there is a better chance for metastases to develop than if he has an operation. Therefore I subscribe to everything Dr. Peck said. I was surprised at Dr. Wolf's roentgen treatment. It is well known that if one attempts to use roentgen radiation on a mole or nevus, degeneration may occur. If one gives 10 or 15 erythema doses of roentgen radiation to a melanocarcinoma, and gets an enormous reaction, that does not mean that the lesion will disappear. I believe in surgical excision followed by plastic surgical measures.

DR. S. FELDMAN: I think that this discussion is important, and that one is entitled to bring the question to a logical conclusion. As to treatment with 10 or 15 erythema doses, I do not think that this is done. One can give a patient 2 or 3 erythema doses. Physicians have been in the habit of saying that they use 2 or 3 doses when, as a matter of fact, they do not. They may be treating

the skin over a small area with secondary or smaller doses with the time of irradiation reduced. And in that manner they talk of 10 or 15 erythema doses. And what is accomplished with 10 erythema doses at one application, as Dr. Wolf mentioned! When I was in Berlin, in Charité, the spleen of a rabbit was treated with 10 or 15 erythema doses. An amount capable of destroying an organ completely has not destroyed cancer itself. Roentgen radiation or radium has never destroyed cancer. If there is a remedy, I still think the diathermy knife is best. The reaction that it causes is a benefit to the patient. It is capable of destroying the outlying cancer cells. The cancer cell can be destroyed by heat. A certain area outside of it is influenced by heat. Cancer cells may be destroyed by heat from the diathermy knife itself, and the blood vessels do not open half an hour afterward because of coagulation of the blood. If one does not ligate them, they do not bleed; they stay sealed, and there is a reaction toward the destruction of the cancer cell. I think that diathermy is the method to be used.

Dr. J. L. Morse (by invitation): We have had some interesting private cases of melanoma at the office of Dr. McKee and have had good luck with them. I have never seen Dr. McKee give 10 erythema doses to anybody. I think he would shudder at the suggestion. Four is the most we have ever given. How much good this treatment does in melanoma I do not know. We have always used the diathermy knife because we were taught to do so, and because fewer metastases resulted than from other methods.

Dr. H. Silver: I am almost glad that this patient was not carefully examined because of the interesting points of view that have been brought out in the discussion. There are already metastases in the axilla, and this fact should settle many arguments as far as the therapy is concerned. Those who recall the cases of melanoma presented before this society agree with me that the results obtained were far from excellent. One knows that no matter what the size of the melanoma is clinically, it is impossible to tell how far it spreads underneath the epidermis. Wide excisions do not help, for cells may be found outside. One cannot be too optimistic.

Dr. D. Bloom: At a meeting a few weeks ago, I heard Dr. Ewing say that it is not dangerous to make a biopsy. This statement is contrary to the current opinion.

Dr. F. Cross: If there is a question of carcinoma, it is usual to give a large dose of roentgen radiation the same day the biopsy is made. Then one may feel justified in waiting for the report on the biopsy before going further. I do not think that this holds true with regard to melanocarcinoma.

Keratoderma Blennorrhagicum. Presented by Dr. Sam. Feldman.

S. B., a man, aged 33, married, gave an irrelevant personal and family history. About six weeks prior to this presentation the patient noticed that his right foot had become swollen up to the ankle. Because of the painful involvement of the foot and the rising temperature, he was forced to stay in bed. One week later a rash developed coving all parts of the body except the head. It first appeared on the legs and the penis. Two weeks ago the left knee became swollen and painful.

Examination showed that on the extremities and the trunk there was a comparatively large number of scattered, firm papules, ranging in size from that of a millet seed to that of a large bean. Around the swollen joints were lesions covered with heaped-up scales, forming a thick, horny crust, in many instances depressed in the center. Removal of the crust left a slightly irregular, but smooth, shiny surface. Some of these crusts were from 3 to 4 mm. in thickness.

Roentgen examination showed no abnormality. The smear from the urethra showed many pus cells, gram-negative extracellular organisms and no gram-negative intracellular diplococci. The smear from the prostate gland showed many degenerated pus cells and a few gram-positive extracellular diplococci. The urine was normal. The blood count revealed: leukocytes, 20,350; polymorphonuclears, 80 per cent; transitionals, 1 per cent, and lymphocytes, 19 per cent. The Wasser-

mann test of the blood was negative. The temperature has ranged from 101 to 103 F. for the past nine days, during which time the patient has been in the hospital.

DISCUSSION

DR. H. SILVER: It is usually comparatively easy to establish the clinical diagnosis definitely. In this case the history of gonorrhea is a little vague, but the smear shows pus cells and some extracellular diplococci. The results of the complement-fixation test for gonorrhea has not been reported. I think that this test is of little value in establishing the diagnosis, as a negative reaction does not rule out a gonorrheal infection.

The involvement of many joints and the presence of the hard, cornified, translucent papules resembling "droplets of wax" and of the characteristic cone-shaped, concentric oyster shell-like lesions help in the making of a correct diagnosis. The so-called triad — (1) gonorrheal infection, (2) polyarthritis and (3) characteristic rupial lesions — is established beyond doubt.

Of course, whenever a case of keratoderma blennorrhagicum is presented, the question of psoriasis arthropathica will come up, and vice versa. It is often impossible to differentiate the two, because of the great clinical and histologic similarity. It is my opinion that the conditions constitute one syndrome with a variant etiologic factor.

DR. S. FELDMAN: My associates and I examined the patient carefully and could not find any clinical evidence of syphilis. I share Dr. Silver's view. One can call the condition psoriasis arthropathica or keratoderma blennorrhagicum. I think that both diseases are the same, and that gonorrhea is the cause of one of them. If one does not find gonorrhea, the condition may be due to other infections. As far as the clinical appearance of the lesions is concerned, I cannot see any difference.

GUMMA OF THE PENIS. Presented by DR. CHARLES GREENHOUSE.

C. M., a man, 48 years old, was born in Italy. His wife had two children and no miscarriages. Examination showed that on the shaft of the penis there were two lesions. The larger one, the size of a nickel, was composed of three indurated, crusted ulcers, with some scaliness and exudation. Behind this lesion there was a pea-shaped, punched-out ulcer with a raised edge and a granulomatous base. There was an adenopathy on the right side. The patient also gave a history of four gonorrheal infections. The dark-field examination gave negative results. The Wassermann test of the blood was positive (4 plus).

THEODORE ROSENTHAL, M.D., *Secretary*

Dec. 15, 1932

ADOLPH ROSTENBERG, M.D., *President*

LUPUS ERYTHEMATOSUS TREATED WITH BISMUTH LOCALLY. Presented by DR. GEORGE J. SPINNER.

E. R., a married woman, aged 20, presented crusted patches of the scalp associated with loss of hair. The process began about two years previous to presentation; somewhat later she noted several lesions on the face. She had received six injections of gold sodium thiosulphate, 0.1 Gm. each, intravenously at weekly intervals. After the last injection, she suffered a severe reaction in the form of a generalized eruption characterized by vesicular lesions and severe itching. This eruption lasted two weeks.

While under our care, the patient received five injections of gold sodium thiosulphate, of 0.25 Gm. each, and bismuth oxychloride locally to the scalp, with marked improvement.

The roentgenograms of the chest gave negative results and the Wassermann test of the blood was also negative.

DISCUSSION

DR. F. DIASIO: An additional interesting feature was the presence of an eroded area on the buccal mucosa.

DR. C. WOLF: I think that the patient should be given further treatment with smaller doses of gold sodium thiosulphate.

DR. I. M. LASHINSKY: Inquiry reveals the fact that, following the injections of the gold compound, the patient began to lose hair; this is perhaps an uncommon finding. I, too, feel that smaller doses of the gold compound should be given.

DR. G. J. SPINNER: The patient has been receiving 0.025 Gm. weekly and has shown improvement. The loss of hair I do not attribute to the treatment with a gold compound. On the contrary, in a case of lupus erythematosus with loss of hair, I observed a return of hair during therapy.

GRANULOMA ANNULARE. Presented by DR. GEORGE J. SPINNER.

B. C., a married white woman, aged 52, said that the present condition had begun two years prior to presentation, on the backs of both hands. The lesions were brownish and papular; they had gradually coalesced, forming a serpiginous outline. The centers were clear, and the border raised and somewhat violaceous.

The Wassermann test of the blood was negative.

DISCUSSION

DR. S. FELDMAN: In a case under my observation, it is of interest to note that the lesions disappeared after a specimen was taken for biopsy.

DR. E. W. ABRAMOWITZ: A patient under my care had thirteen lesions. I found that carbon dioxide snow applied with light pressure would cause a disappearance of the lesions. The patient gave a negative reaction to tuberculin. Apparently a variety of remedies are helpful for this condition. I have seen cases in which the lesions disappeared when one side was treated with roentgen rays and the other with carbon dioxide snow.

DR. V. A. CORNELL: In my experience, treatments with roentgen rays and snow carbon dioxide are equally effective.

DR. H. SILVER: About three years previous to presentation, Dr. Chargin and I studied a number of cases at the Mount Sinai Clinic. We found no regularity as to the response of the patient to the tuberculin test. One patient studied extensively in respect to tuberculosis gave, after a variety of tests including animal inoculations, no clue that warranted the assumption that there was a definite relation to tuberculosis. As to therapy, a variety of methods seem to be at least temporarily effective.

SYPHILITIC PHLEBITIS? GUMMA? Presented by DR. I. M. LASHINSKY, for DR. CHARLES WOLF.

R. D., a married woman, aged 33, born in Rumania, was first seen at the Morrisania Hospital Clinic on Dec. 8, 1932. The patient stated that one year prior to admission she accidentally injured her left leg by falling against the edge of a piano, and that shortly afterward lumps appeared, which refused to heal.

For the last five years she had been troubled with headaches and dizziness. She has been married for fifteen years, and had twins, aged 14 years, and a younger child, aged 9½ years. The patient had never had a miscarriage.

On examination, she presented in the upper third region of the left leg, three infiltrated, brownish-red lesions, varying in size from that of a walnut to that of an egg. The largest lesion contained in the center a small punched-out ulceration, from which pus exuded. These lesions were somewhat tender but not pruriginous. The patient said that she had not taken drugs. The Wassermann reaction of the blood was 4 plus.

DISCUSSION

DR. E. W. ABRAMOWITZ: I agree with the diagnosis of gumma, but I do not see why this condition is presented as one of gummatous phlebitis. We have the erythema induratum group, commonly called Mauriac's disease, but this case appears to be the usual type of gumma.

DR. A. SAYER: This case impresses me as Bazin's disease, and I should suggest that a specimen for biopsy be taken.

DR. F. DIASIO: I, on the contrary, believe that we are dealing with gumma. A section of the tissue will determine the correct diagnosis.

DR. F. CROSS: This is an interesting case. The punched-out ulcer differentiates this condition from erythema induratum. A further point is the age, which speaks against erythema induratum Bazin; on the other hand, the 4 plus Wassermann reaction helps to make the diagnosis of gumma more certain.

ERYTHEMA MULTIFORME (TYPUS INVERSUS). Presented by DR. I. M. LASHINSKY.

I. S., aged 30, born in Hungary, single, a clerk, stated that an eruption similar to the present lesions first appeared about nine years previous to presentation, and since then had recurred every six months up until one year and a half previous to presentation. He has been free from the eruption during this interval. The present eruption is of only five days' duration.

The patient presented bullous lesions of various sizes on the roof of the mouth, tonsillar fossae, buccal mucosa and lips. On the volar surface of the upper extremities, erythematous lesions were scattered. The palms were covered with annular lesions of the iris type. The Wassermann test of the blood gave a negative reaction. The patient said that he had not taken drugs or laxatives.

ERYTHEMA MULTIFORME BULLOSUM. Presented by DR. ARTHUR SAYER.

A. L., a woman, aged 40, born in Denmark, presented herself with an eruption which was limited to the buccal mucosa and dorsa of the hands and wrists. The lesions varied in size from that of a pea to that of a dime; they were isolated and confluent, there being about two dozen on each extremity. One week later the patient returned to the clinic ill; the lesions had a violaceous and hemorrhagic appearance. A few new hemorrhagic lesions the size of a pinhead appeared on the tips of the fingers. The patient had had a similar attack in May, 1932, which lasted about six weeks.

DISCUSSION

DR. E. W. ABRAMOWITZ: Dr. Lashinsky's case is extremely interesting because of the reverse type of eruption. This condition is an iris type of erythema multiforme bullosum. I am interested in one thing: How sure are we that there is not a relationship to an eruption due to a drug? This is a most difficult thing to determine. Patients are often presented as having an eruption due to a drug, when it cannot be proved. On the other hand, patients are presented whose conditions are diagnosed otherwise, when the eruptions are eventually proved to be due to drugs. It would be necessary to live with these patients in order to be certain. In one case, the patient knew when she was going to have an attack; after considerable questioning, she remembered having eaten some cake which inquiry revealed contained phenolphthalein. In another case, the patient swore that she had taken only phenolax.

DR. A. SAYER: I believe that Dr. Abramowitz will admit that there is an erythema multiforme not due to drugs, and unless one can prove that drugs have been ingested, a rash due to drugs must be ruled out.

DR. L. CHARGIN: I do not believe that Dr. Abramowitz meant to convey that all cases of erythema multiforme are eruptions due to drugs. This must be admitted for a percentage of cases presented. But one must not forget the classic type of Hebra's erythema multiforme and other types of erythema multiforme which are not due to drugs.

DR. I. M. LASHINSKY: In this case, there was no history of ingestion of drugs. I believe that there is some possibility that focal infection may have caused this eruption.

GUMMAS OF THE SKIN ASSOCIATED WITH OCULOMOTOR PARALYSIS. Presented by DR. ADOLPH ROSTENBERG.

Y. H., a housewife, aged 47, was married thirteen years and never pregnant. Her family and personal history were irrelevant. The present cutaneous trouble began many years previous to presentation; the condition had been treated with salves and lotions. A blood test was never taken. The trouble with the eyes started three weeks before presentation, with slight tenderness of the right cheek and tearing from the eye, followed by ptosis of the lid.

On examination we found deep, irregular scarring of the entire upper part of the back and a number of brown, infiltrated lesions, some of which were ulcerated and arranged in a circinate form. There was a complete ptosis of the right eyelid. The eyeball was slightly protruding and markedly abducted. There was no inner, upper or lower rotation of the eyeball. The pupil was markedly enlarged and did not react to light and in accommodation. The fundus was normal. The Wassermann test of the blood and the Kahn test were 4 plus.

The spinal fluid appeared clear, with a trace of albumin; there were a faint trace of globulin and a reduction in sugar. The number of cells per cubic centimeter was 10; a smear was negative for bacteria; the colloidal gold curve was 1111000000. The cells consisted of lymphocytes. The Wassermann test was 1 plus.

DISCUSSION

DR. L. CHARGIN: The association of papulotuberculous syphiloderm is not so rare. Of importance in these cases is the early diagnosis of the paralysis, for with adequate treatment the prognosis is very good.

DR. E. W. ABRAMOWITZ: The patient never received treatment, and therefore presents a strong argument in favor of treatment. In this case, it seems to me that because of so few findings in the spinal fluid, the condition looks more like the vascular type of lesion. The patient did not have much meningitic involvement.

DR. S. FELDMAN: In cases of oculomotor paralysis, it has been very well brought out that the condition is not a parenchymatous type of syphilis. There are two nerves involved, both of which travel outside the brain. Gumma of the brain itself does not yield to antisyphilitic treatment. Only recently, I saw an autopsy performed on a patient who had received arsphenamine and had an unhealed gumma of the brain.

DR. J. L. MORSE (by invitation): I think that the fact that examination of the spinal fluid yields negative results indicates that the lesion is along the course of the nerve.

DR. T. ROSENTHAL: In attempting to locate a lesion in this case we had several different findings to work with. The relatively normal cell count of the spinal fluid eliminated a basilar meningitis. The chances are that the lesion is not in the brain substance. If it is not in the brain substance, where can it be? The third nerve, as it emerges from the brain stem, passes between the superior cerebral

and superior cerebellar arteries. If these vessels were the seat of a syphilitic arteritis, they would cause pressure on the nerve and thus produce the paralysis present in this case.

KERATODERMA BLENNORRHAGICUM. Presented by DR. ARTHUR SAYER.

T. M., a man, aged 55, stated that he became ill about nine weeks before admission to Morrisania Hospital, when he began to complain of pain and swelling of both knees, and of burning and frequency of micturition. Soon a urethral discharge developed, and simultaneously a rash appeared. The family history was not significant. He admitted having had only an attack of pleurisy twenty years before presentation, and said he had not had a venereal disease.

The examination on admission showed that both knee joints were tender, painful and swollen, with limitation of active and passive motion. The prostate was moderately enlarged and tender. The prostatic smear showed many pus cells with many extracellular and a few intracellular diplococci.

The skin showed about two dozen lesions scattered over the dorsa of the hands, and on both legs and feet. The smaller lesions were pea-sized, yellowish, firm and elevated. The larger ones were crusty. These crusts could be readily removed by scraping. The underlying base was red, and covered with a thin layer of serum.

The Wassermann test of the blood was reported 4 plus. Chemical examination of the blood revealed: urea nitrogen, 14.0; creatinine, 1.0, and nonprotein nitrogen, 32.0.

A biopsy from a small lesion on the foot was taken by Dr. Feldman, who reported as follows: There were a marked hyperkeratosis and parakeratosis. The granular layer was found absent in places. It could be seen only in the form of individually scattered cells. The rete appeared normal. The rete pegs were not elongated. There were edema, vascular dilatation and mild round cell infiltration in the cutis.

DISCUSSION

DR. A. SAYER: The patient was admitted to the hospital a week previous to presentation because of a urethral discharge, plus cystitis. He also had severe arthritis with an elevation of temperature, and could not be moved. He had cutaneous lesions the size of a pinhead. The lesions on the hands were already crusted, and the lesions on the legs and feet could be removed, leaving a slightly reddish surface underneath. Crusted lesions are common in this disease. He had a 4 plus Wassermann reaction. We do not consider that these lesions are syphilitic in any way. The prostatic smear was positive for gonococci.

DR. L. CHARGIN: I think that Dr. Sayer had the opportunity to study the case more or less thoroughly. We had occasion for only a cursory examination tonight. In a typical case the primary lesion is a waxy papule. It looks like a vesicle, but is not. Removal of the top leaves a moist surface. I did not see such a condition in this case. One may think of arthropathic psoriasis as well as keratoderma blennorrhagicum.

DR. S. FELDMAN: The patient does have lesions similar to those on the man presented at the last meeting. This man has a few lesions on the feet and the hands which are marked fairly well. They are scaly in spite of the fact that when I removed one of them today it had the appearance of slight moisture; but this condition is also seen in psoriasis arthropathica. It is inadvisable to make a diagnosis based on a few lesions, but I should favor a diagnosis of blennorrhagic keratoderma.

DR. H. SILVER: Last month we had a typical case of keratoderma blennorrhagicum. I am not going to repeat all I said then. I am of the opinion that keratoderma blennorrhagicum is a rare cutaneous disease. When I first interested myself in the subject, I found seventy cases recorded. It is a remarkable coincidence to see two cases at two successive meetings. In this case we have a history of a gonorrheal infection and involvement of several joints and find early

as well as late lesions. Both early and late lesions are characteristic. I understand that the hyperkeratosis of the soles is of long duration, and that the lesions are of recent date. I think that further observation will definitely establish the diagnosis of keratoderma blennorhagicum.

DR. H. J. COHN: I should suggest that the joints be punctured, because occasionally gonococci are found in the joints.

DR. A. ROSTENBERG: I hold the same opinion as Dr. Silver. The condition looks suggestive of keratoderma blennorrhagicum. The lesions are not so characteristic that a definite diagnosis may be made on cursory examination. There is a history of gonorrhea, but no gonococci were found in the lesions. The absence of gonococci in the lesions should not militate against the diagnosis, since they are rarely found.

DR. P. GROSS: In typical cases of keratoderma blennorrhagicum, in addition to cutaneous lesions, we have a sick patient, with high temperature and involved joints. Gonococci may or may not be demonstrated in the lesions of keratoderma. If gonorrhea dates back many years and there is a polyarthritis associated with a suggestive cutaneous eruption, psoriasis arthropathica is to be considered as well. This patient presents lesions which are not quite typical of keratoderma, but suggest more closely psoriasis arthropathica because of localization on the soles and palms of moisture, waxy and oyster-shell-like lesions, and a Köbner phenomenon at the site of a puncture for a blood test.

DR. A. SAYER: I do not present this case as a typical case of keratoderma blennorrhagicum. Every case must have a beginning. Some features that Dr. Chargin mentioned are present. With reference to the yellowish, waxy lesion, it showed a little gelatinous substance, and perhaps, in time, it will begin to crust and form a rupia-like lesion.

LICHEN PLANUS SIMULATING PSORIASIS VULGARIS. Presented by DR. I. M. LASHINSKY, for DR. CHARLES WOLF.

N. J., aged 34, married, gave an unimportant personal history. The present eruption began eight weeks previous to presentation and involved the forearms, palms, thighs and penis. The lesions were papular and scaly, and there were some plaquelike lesions covered with a whitish scale such as occurs in psoriasis. The interesting feature was the involvement of the buccal mucosa. There were annular lesions on the left cheek and a mosaic-like, whitish plaque on the right.

LICHEN PLANUS. Presented by DR. SAM FELDMAN.

R. S., a white man, aged 46, presented a papular eruption over the entire body. In the lumbosacral region there were flat, shiny, violaceous papules, packed closely. The skin was thin in places and had the appearance of cigaret paper. In some areas, however, the papules were not definitely typical. A small, grayish patch could be found in the right buccal mucosa. The unusual features in this case were (1) the atrophic skin on the back and (2) the atypical lesions in certain locations.

DISCUSSION

DR. A. ROSTENBERG: The therapy of lichen planus is more or less difficult. It would be interesting to hear some therapeutic suggestions.

DR. E. W. ABRAMOWITZ: Cases of lichen planus are difficult to handle. I usually employ roentgen rays. Internally I give either iodides or arsenic, the latter by injections. In extensive cases, I have had good results with arsphenamine.

DR. A. SAYER: My experience in treating patients with lichen planus has probably been more fortunate. I usually employ roentgen rays.

DR. S. FELDMAN: I should like to suggest stovarsol, a good drug to be given by mouth and an excellent arsenical in lichen planus.

DR. H. SILVER: I have not found that stovarsol has proved superior to other arsenicals.

DR. J. L. MORSE: I have treated many patients with chronic lichen planus but have never been able to cure them. As a routine, my associates and I always tried mercuric salicylarsenate. Some patients seem to recover, but I wonder if it is the treatment that is responsible. There are patients, I will admit, who do not respond to treatment. Results were good in one case in which diathermy was given. In one of the worst cases of lichen planus that I have seen, mercuric salicylarsenate was given, with good results.

DR. C. WOLF: My experience with roentgen rays is as follows: The acute type of lichen planus, I believe, responds to this treatment much faster than the less acute type. The localized type does not respond. I employ very high voltage. I direct the ray from both sides, giving four exposures paravertebrally, that is, 25 per cent to each side. The treatment is repeated within six weeks. The results are uniformly good. Even cases of lichen planus of the mucous membrane respond satisfactorily to this treatment.

Book Review

Handbuch der Haut und Geschlechtskrankheiten. By J. Jadassohn. Volume XVI. Part 1. **Syphilis: Primaraffekte Exantheme und Enantheme; Nieren; Blase; Genitalorgane.** Price, 118 marks, Pp. 569. Berlin: Julius Springer, 1930. Part 2. **Syphilis: Herz und Gefasse innersekretorische Drusen Intestinaltractus; Leber Luftwege; Lungen.** Price, 186 marks. Pp. 866. Berlin: Julius Springer, 1931.

These two exhaustive treatises are issued as part of the encyclopedia of diseases of the skin and venereal diseases. Part 1 of volume 16 is devoted to the early effects of syphilis, and part 2 to syphilis of the heart and blood vessels, the glands of internal secretion, the intestinal tract, the liver and the respiratory tract. The various parts are handled in the thorough and able way to which one has become accustomed in this encyclopedia and apparently nothing on the subject has been neglected. The tables of contents indicate the completeness of the works: Part 1: genital and extragenital chancre, 164 pages; histology of the chancre, 18 pages; secondary syphilis of the skin and of the mucous membrane of the orifices of the body, 90 pages; histology of syphilis, 38 pages; etc. Each topic is considered in minute detail. The extensive bibliographies illustrate the thoroughness; for example, the bibliography of the literature on chancre covers 56 pages. The various parts are in the hands of men who can write with authority on their fields: Prof. R. Frühwald, Chemnitz; Prof. Ernest Finger, Vienna; Prof. Oscar Gans, Heidelberg, and Prof. C. Posner, Berlin.

Part 2 is equally complete. Prof. G. Herxheimer, Munich, considers the changes in syphilis of the heart and blood vessels in section 1, which is really a work of 234 pages. Dr. Carl Evelbauer, Munich, discusses syphilis of the veins. Prof. Hermann Schlesinger, Vienna, considers syphilitic diseases of the heart and vessels. The three monographs amount to a volume of 384 pages on syphilis of the heart and blood vessels. The other articles are, for the most part, as complete and as valuable, the whole constituting an unexampled treatise on syphilis of the structures that are considered.

The reviewer has already exhausted his vocabulary in praise of the volumes in this magnificent contribution to dermatology. As the high standard set by the other volumes continues to be maintained in succeeding volumes, admiration is continuously excited by the scholarship and the scientific zeal that are responsible for its existence.

Directory of Dermatologic Societies *

FOREIGN

British Association of Dermatology and Syphilology (Canadian Branch)

J. Frederick Burgess, President, Drummond Medical Bldg., Montreal.
B. Usher, Secretary-Treasurer, Medical Arts Bldg., Sherbrooke St., W., Montreal.

Royal Society of Medicine, Section of Dermatology

A. M. H. Gray, President, 30 New Cavendish St., W. 1, London.
W. N. Goldsmith, Secretary, 6, Upper Wimpole St., W. 1, London.

NATIONAL DERMATOLOGIC SOCIETIES

American Medical Association, Scientific Assembly, Section on Dermatology and Syphilology

Francis Eugene Senear, Chairman, 55 E. Washington St., Chicago.
Harry R. Foerster, Secretary, 208 E. Wisconsin Ave., Milwaukee.
Place: Milwaukee. Time: June 12-16, 1933.

American Dermatological Association

Fred Wise, President, 200 W. 59th St., New York.
W. H. Guy, Secretary, 500 Penn Ave., Pittsburgh.
Place: Chicago. Time: June 8-10, 1933.

SECTIONAL DERMATOLOGIC SOCIETIES

Baltimore-Washington Dermatological Society

Harry M. Robinson, President, 106 E. Chase St., Baltimore.
M. H. Goodman, Secretary, 401 Medical Arts Bldg., Baltimore.

Central States Dermatological Association

Emmett C. Troxell, President, 74 W. Adams St., Detroit.
William G. Saunders, Secretary, 9203 Grand River Ave., Detroit.
Place: Pittsburgh. Time: 1933.

Iowa and Western Illinois Dermatological Association

J. C. Kessler, President, University Hospital, Iowa City, Iowa.
Robert E. Jameson, Secretary, 201 West Second St., Davenport, Iowa.

New England Dermatological Society

Arthur M. Greenwood, President, 416 Marlboro St., Boston.
William P. Boardman, Secretary, 388 Marlboro St., Boston.

Southern Medical Association, Section on Dermatology and Syphilology

Andrew L. Glaze, Chairman, 1928 First Avenue, Birmingham, Ala.
Dudley C. Smith, Secretary, University, Va.
Place: Richmond, Va. Time: November, 1933.

* Secretaries of dermatologic societies are requested to furnish the information necessary for the editor to make this list complete and to keep it up to date.

STATE DERMATOLOGIC SOCIETIES

Florida Society of Dermatology and Syphilology

Chairman for each meeting is elected from city in which meeting is held.
Frank Wilson, Secretary, 310 Greenleaf & Crosby Bldg., Jacksonville, Fla.
Place: Jacksonville, Tampa, Miami and place of meeting of state medical society.
Time: Quarterly.

Louisiana Dermatological Society

J. A. Devron, President, 150 Baronne St., New Orleans.
M. T. Van Studdiford, Secretary-Treasurer, 912 Pere Marquette Bldg., New Orleans.

Medical Society of the State of New York, Section on Dermatology and Syphilology

Paul E. Bechet, Chairman, 55 Park Ave., New York.
Herbert H. Baukus, Secretary, 925 Delaware Ave., Buffalo.

Medical Society of the State of Pennsylvania Section on Dermatology

Stanley Crawford, President, 200, 9th St., Pittsburgh.
Robert L. Gilman, Secretary, 1930 Chestnut St., Philadelphia.

Michigan State Medical Society, Section on Dermatology and Syphilology

G. H. Belote, Chairman, 201 S. Main St., Ann Arbor.
A. R. Woodburne, Secretary, Grand Rapids Clinic, Grand Rapids.
Place: Grand Rapids. Time: Sept. 12-14, 1933.

Minnesota Dermatological Society

E. Z. Shapiro, President, 14 W. Superior St., Duluth.
D. D. Turnacliff, Secretary, 407 Medical Arts Bldg., Minneapolis.
Time: First Wednesday in October, December, February and April.

Oklahoma Dermatological Association

William E. Eastland, President, 117 N. Broadway, Oklahoma City.
C. L. Brundage, Secretary, 616 Medical Arts Bldg., Oklahoma City.

Texas Dermatological Society

T. J. Calhoun, President, 1719 Pacific Ave., Dallas.
Everett R. Seale, Secretary, 1215 Walker Ave., Houston.

LOCAL DERMATOLOGIC SOCIETIES

Atlanta Dermatological Society

Francis G. Jones, President, 384 Peachtree St., Atlanta, Ga.
Charles A. Wilkins, Secretary, Medical Arts Bldg., Atlanta, Ga.

Bronx Dermatological Society

Adolph Rostenberg, Chairman, 152 E. 179th St., New York.
Theodore Rosenthal, Secretary-Treasurer, 115 W. 86th St., New York.

Brooklyn Dermatological Society

Louis J. Frank, President, 1367 Eastern Parkway, Brooklyn.
George F. Price, Secretary, 884 Lincoln Place, Brooklyn.
Time: Third Monday of each month except June, July, August and September.

Buffalo Dermatological Society

Joseph Brumberg, President, 528 Delaware Ave., Buffalo.
William F. Hoover, Secretary, 333 Linwood Ave., Buffalo.

Chicago Dermatological Society

Oliver S. Ormsby, President, 25 E. Washington St., Chicago.
Max Wien, Secretary, 104 S. Michigan Ave., Chicago.

Cincinnati Dermatological Society

Ralph R. DuCasse, President, Carew Tower, Cincinnati.
Raymond G. Senour, Secretary-Treasurer, 19 W. 7th St., Cincinnati.

Cleveland Dermatological Society

E. W. Netherton, President, Cleveland Clinic, Euclid Ave. and E. 93d St., Cleveland.
H. G. Miskjian, Secretary, Rose Bldg., Cleveland.

Detroit Dermatological Society

Emmett C. Troxell, President, 74 W. Adams Ave., Detroit.
William G. Saunders, Secretary-Treasurer, 9203 Grand River Ave., Detroit.

Los Angeles Dermatological Society

Samuel Ayres, Jr., Chairman, 2007 Wilshire Blvd., Los Angeles.
Louis F. X. Wilhelm, Secretary, 1401 South Hope St., Los Angeles.

Manhattan Dermatologic Society

Fred Wise, Chairman, 200 West Fifty-Ninth St., New York.
Mihran B. Parounagian, Secretary, 126 E. 39th St., New York.

Montreal Dermatological Society

J. F. Burgess, President, Drummond Medical Bldg., Montreal, Canada.
B. Usher, Secretary-Treasurer, Medical Arts Bldg., Sherbrooke St., W., Montreal, Canada.

New York Academy of Medicine, Section of Dermatology and Syphilis

A. Benson Cannon, Chairman, 371 Park Ave., New York.
Louis Chargin, Secretary, 1 W. 85th St., New York.

New York Dermatological Society

George M. MacKee, President, 200 W. 59th St., New York.
Edward R. Maloney, Secretary, 853 7th Ave., New York.

Omaha Dermatological Society

Alfred Schalek, Chairman, 721 Medical Arts Bldg., Omaha.
Donald J. Wilson, Secretary, 1216 Medical Arts Bldg., Omaha.

Philadelphia Dermatological Society

Frederick D. Weidman, Chairman, 1930 Chestnut St., Philadelphia
Robert L. Gilman, Secretary, 1930 Chestnut St., Philadelphia.

Pittsburgh Dermatological Society

Claude B. Norris, Chairman, 244 Lincoln Ave., Youngstown, Ohio.
Frederick Amshel, Secretary, 3401 5th Ave., Pittsburgh.

St. Louis Dermatological Society

Richard S. Weiss, President, 3720 Washington Blvd., St. Louis.
M. F. Engman, Jr., Secretary-Treasurer, 3720 Washington Blvd., St. Louis.

San Francisco Dermatological Society

Ernest K. Stratton, President, 490 Post St., San Francisco.
John M. Graves, Secretary, 909 Hyde St., San Francisco.